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ABSTRACT

This guide provides guidelines for meeting the accessibility requirements of the Americans with Disabilities (ADA) Act in college and university buildings. The publication is divided into 10 chapters, the first 7 of which present construction drawings, evaluation criteria, and specifications for: (1) site accessibility (external path of travel, curbing, parking); (2) the building entrance; (3) doors, (4) interior circulation, (5) restrooms and bathing facilities, (6) drinking fountains and pay telephones, and (7) special spaces and equipment (such as dormitories, kitchens, dining halls, libraries). Mandatory evaluation requirements are noted at the beginning of each chapter. The eighth chapter provides guidance for facilities inventory and evaluation. It discusses surveying for barriers and includes a detailed facilities survey instrument. Chapter 9 discusses other accessibility issues including cost effectiveness, communication, construction supervision, and program implementation. Chapter 10 lists additional resources including 57 organizations that can provide information about accessibility. There are also 105 construction detail line drawings (e.g., typical curb range details, accessible door handles, typical sleep/study room for two persons) and a glossary of definitions taken from the Americans with Disabilities Act. (Contains 59 references.) (JLS)

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Removing the Barriers: Accessibility Guidelines and Specifications

Stephen R. Cotler, AIA

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Removing the Barriers: Accessibility Guidelines and Specifications

Stephen R. Cotler, AIA

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♾

To my father, Joseph D. Cotler,
whose sixteen-year battle against cancer
ended during the writing of this publication.

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Introduction

The Americans with Disabilities Act (ADA) was signed into law by President George Bush in July 1990. This legislation is a wide-ranging civil rights statute that prohibits discrimination against people with disabilities. It is similar to the protection given to women, minorities, and others since the Civil Rights Act of 1964 was enacted.

Most colleges and universities already have been introduced to the issue of accessibility with the passage of the Rehabilitation Act of 1973. The regulations implementing Section 504 of that act became effective in June of 1977. The act required that "No otherwise qualified handicapped individual in the United States ... shall solely by reason of handicap, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." The concept of "program accessibility" was used to meet this regulation; structural modifications did not have to be made on every campus building to achieve compliance with this law, but rather the programs and activities offered by the institution as a whole needed to be accessible. Many campus buildings were made accessible because of Section 504.

About ADA

This far-reaching new law is estimated to protect an estimated 43 million Americans with physical or mental impairments that substantially limit activities such as walking, talking, seeing, hearing, or caring for themselves. People who have a record of such an impairment and those regarded as having an impairment are also protected. In addition, people with AIDS or who are HIV-positive are included under the umbrella of protection. Individuals who are in or have successfully completed rehabilitation for alcoholism or drug abuse are also protected, but those currently engaging in the illegal use of drugs are not covered.

This publication concentrates on making the built environment accessible, but ADA addresses other issues as well, such as employment and vehicles used for transportation. Title III of this law bars discrimination in employment, and requires most employers to make reasonable accommodation for qualified employees with disabilities starting in 1992 in public accommodations and commercial facilities. Title II bars discrimination in any activity or service operated or funded by state or local government; this is similar to the Section 504 requirement that services operated or funded by the federal government cannot discriminate.

ADA specifically prohibits discrimination in public accommodations, many of which can be found on today's college campus:

- Housing.
- Museums, libraries, or galleries.
- Establishments serving food or drink.
- Theaters, concert halls, stadiums, or other places of exhibition or entertainment.
- Gymnasiums, auditoriums, convention centers, or lecture halls.
- Day-care or senior citizen centers.
- Service establishments such as laundromats, banks, barber shops, or beauty shops.
- Hospitals or health-care providers.

The list specifically includes nursery and private schools (elementary through postgraduate) and other places of education.

Among other provisions of the law, new buses will need to be accessible to people who use wheelchairs. Telephone companies will need to provide relay services so that people with speech or hearing impairments who use keyboard devices such as TDDs can converse with people or businesses that use conventional voice telephones.

Employment

ADA bars employment discrimination in the public and private sectors and state and local governments. ADA takes an across-the-board approach to antidiscrimination protection in employment. It bans discrimination and requires reasonable accommodation in recruiting, hiring, employing, promoting, and training qualified workers with disabilities. Regard is given to the employer's judgment as to what functions of a job are essential, and accommodation is required unless it results in "undue hardship" (significant difficulty or expense to the employer). Employers of twenty-five or more workers are affected starting in July 1992, and employers of between fifteen and twenty-four are covered two years later. Private membership clubs are exempted, except labor unions.

Public Accommodations

In January 1992, ADA's public accommodations section (Title III) becomes effective. Title III prohibits discrimination on the basis of disability in the full and equal enjoyment of goods, services, facilities, privileges, advantages, or accommodations of any place of public accommodation and services operated by private entities. The goods, services, and accommodations must be offered in the most integrated setting appropriate to the needs of the individual.

New facilities to be occupied beginning in January 1993 have to be accessible, unless it is structurally impossible to make them so. Newly altered portions of facilities must also be accessible. Elevators are not required if a building has less than three stories or less than 3,000 square feet per story, except for shopping centers and offices of health-care providers. Many state and local codes, however, do provide for upper floor accessibility by elevator.

Historic Buildings

It is important to understand what structures are considered historic buildings under ADA and what can be done to make them accessible without destroying the buildings' integrity.

A qualified historic building or facility is one that is

- Listed in or eligible for listing in the National Register of Historic Places, or
- Designated as historic under an appropriate state or local law.

If you are altering a qualified historic building or facility, the checklist in Chapter 8 under the heading Building Alterations will apply.

If altering the building for accessibility will threaten or destroy its historic significance, you may be able to use the alternative minimum requirements in the checklist under the heading Historic Buildings, and in the federal guidelines. Before using these alternative requirements, however, a set of procedures must be followed to determine whether or not the building can in fact be altered using the standard guidelines for alterations.

Section 106 of the National Historic Preservation Act requires that a federal agency with jurisdiction over a federal, federally assisted, or federally licensed undertaking, must consider the effects of the undertaking on buildings listed in or eligible for listing in the National Register of Historic Places. This section also requires that the agency give the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking before approval. Alterations that are subject to Section 106 are required to go through this process.

If the Advisory Council on Historic Preservation agrees that compliance with the requirements for accessible routes (exterior and interior), ramps, entrances, or toilets would threaten or destroy the historic significance of the building or facility, the alternative requirements set forth in the checklist in Chapter 8 may be used for the feature in question.

If the building is not subject to Section 106, you should consult with the State Historic Preservation Officer. If he or she agrees that compliance with the accessibility requirements for accessible routes (exterior and interior), ramps, entrances, or toilets would threaten or destroy the historical significance of the building or facility, the alternative requirements may be used.

Where the State Historic Preservation Officer has delegated the consultation responsibility for purposes of this section to a local government historic preservation program, the responsibility may be carried out by the appropriate local government body or official.

Interested persons should be invited to participate in the consultation process, including state or local accessibility officials, individuals with disabilities, and organizations representing individuals with disabilities.

The following special considerations apply to historic structures:

- A ramp with a slope no greater than 1:6 for a run not to exceed 24 inches may be used as part of an accessible route to an entrance.

- If it is determined that no entrance used by the public can meet ADA, then access at any entrance not used by the general public but unlocked with directional signage at the primary entrance may be used. The accessible entrance shall also have a notification system. Where security is a problem, remote monitoring may be used.

Other minimum requirements are set forth in the checklist in Chapter 8.

Telecommunications

Telecommunications relay services for people with speech and hearing impairments will have to be in place across the country by 1993. These services provide a link between users of telecommunications devices for the deaf (TDD) or other non-voice devices, and hearing individuals using voice telephones.

ADA also requires that televised pubic service announcements produced or funded, in whole or in part, by any federal agency be closed-captioned.

Miscellaneous Provisions

The final section of ADA deals with clarifications. The following two provisions are of particular interest to colleges and universities:

- Nothing in ADA, except as specifically provided, shall be construed to apply a lesser standard than one already required under Title V of the Rehabilitation Act of 1973 or the regulations issued as a result of that law.
- States are subject to ADA, but ADA does not limit or invalidate state or local laws that provide protection equal to or greater than those of ADA.

Standards

The U.S. Architectural and Transportation Barriers Compliance Board (ATBCB) has revised its Minimum Guidelines and Requirements for Accessible Design (MGRAD). These new guidelines are called the Americans with Disabilities Act Accessibility Guidelines (ADAAG), and were issued July 26, 1991. Although these guidelines were issued for Title III, they or the Uniform Federal Accessibility Standards (UFAS) may be used for Title II when designing new construction or undertaking alterations of existing structures.

These standards are technically similar to ANSI 117.1 (1980), but contain scoping provisions not found in ANSI, such as accessibility to restaurants, health-care facilities, mercantile establishments, libraries, and postal facilities. ADAAG and UFAS can be obtained from ATBCB, 1111 18th Street, N.W., Suite 501, Washington, D.C. 20036-3894.

If in specific design areas state or local laws and codes are more stringent, then these should be followed. Although many national and local building codes are based on one of three major codes and most accessibility requirements follow ANSI A117.1-1961 (R 1971) relatively closely, it is impossible to generalize about local code requirements. Most codes differ, if not in design specifications, then in scope and coverage of the accessibility requirements.

Time Frame

Some provisions of ADA took effect when the President signed it. Other portions go into effect over a period of years on the dates specified in the new law.

The impact of ADA on higher education facilities will be realized over time. Because of individual state laws and the previous Section 504 regulations, many of the barriers have already been removed, and most new construction completed after 1977 should be barrier-free.

Many states that have building codes with accessibility provisions may go through a process to have their codes certified as having equal compliance. You should check to see if your state or municipality codes are equivalent.

Existing Facilities. All existing public accommodations, which were described earlier, are required to be accessible by the target date of January 26, 1992. Barriers in existing facilities must be removed if readily achievable (easily accomplished and able to be carried out without much difficulty or expense) by this date. If not, alternative methods of providing services must be offered.

New Facilities. Facilities designed and constructed for first occupancy after January 26, 1993 must be designed to be accessible. A facility would fall under this provision if the last application for a building permit extension is certified to be complete by the authority having jurisdiction after January 26, 1992, and if the first certificate of occupancy is issued after January 26, 1993. Therefore, it would be prudent to immediately implement barrier-free design in all proposed facilities, if you are not already doing so.

Alterations to Existing Facilities. Any alterations made to existing facilities must be made, to the maximum extent feasible, so that the altered portions of the facility are accessible. The work will fall under ADA if the actual physical alteration begins after January 26,

1992. Again, it would be wise to immediately implement a barrier-free design policy for any such construction taking place on campus. When alterations to any primary function area are made, an accessible path of travel must be provided to this altered area. Restrooms, telephones, and drinking fountains serving this altered area must also be accessible, to the extent that the added accessibility costs are not disproportionate to the overall alteration costs.

Enforcement

Enforcement and remedies are the same as those available under Title II of the Civil Rights Act of 1964. A court may order an entity to make facilities accessible, provide auxiliary aids or services, modify policies, and pay attorneys' fees. Lawsuits may not be filed against small businesses for violations occurring before July 26, 1992 or January 26, 1993 (depending upon the size of the business and gross receipts), except for violations relating to new construction or alterations to facilities.

How To Use This Book

The details and magnitude of information contained in ADAAG and UFAS have not been duplicated here. What this publication attempts to do is provide some insight into why and how to meet the ADA. It is important to have a copy of ADAAG and any additional material forthcoming from the federal government so that you can be assured that you are providing sufficient accessibility.

This publication is divided into ten chapters, the first seven of which are roughly organized into three general sections: evaluating criteria, construction drawings, and specifications.

Evaluating Criteria

With drawings, text, and checklists, existing and proposed facilities can be evaluated to see if they provide accessibility for people with disabilities. This first part of each chapter provides information needed to investigate a campus building and determine whether a person with a disability can enter and use the interior spaces. It must be emphasized that the criteria listed in this first section do not necessarily provide a totally barrier-free environment, but they do ensure that those items essential for basic accessibility are met.

Mandatory evaluation requirements are outlined in checklist form at the beginning of each chapter and are indicated with ☑ in front of the requirement. Other information is also provided for a better overview of the problems encountered when modifying a building. In some cases, the recommendations listed here might exceed the minimum standards set forth by ADAAG and UFAS, but experience has shown that following these recommendations will make the campus more accessible and alleviate some potential future problems.

If an existing facility on your campus does not meet the evaluating criteria, you can correct the problem by using the drawings and specifications found next in each chapter.

Drawings

Architectural construction drawings are presented as solutions to common problems typically found in existing facilities. These solutions meet the ANSI A117.1 1986 standard and the UFAS, as well as many other standards found throughout the United States. Before these drawings are used, they should be reviewed by an architect or engineer to ensure compliance with local environmental conditions and building codes. Although these drawings have been created for modification, some can also be used for details in new construction.

Specifications

Those areas requiring written specifications conclude each of the first seven chapters. As with the drawings, the specifications can be used for both new and modification work, and they also should be reviewed by a licensed professional to ensure compliance with state and local codes.

Chapter 1

Site Accessibility

A Path of Travel

To be considered accessible, an exterior or interior path of travel must meet the following requirements:

- ☑ Have a minimum width of 48 inches (36 inches under certain circumstances).
- ☑ Be constructed of firm and stable material.
- ☑ Satisfy changes of level with curb ramps.
- ☑ Have a slope of 1:20 or less (paths having a slope greater than 1:20 are considered ramps).
- ☑ Have no abrupt drop of more than 1/2 inch. Changes from 1/4 inch to 1/2 inch should be sloped.
- ☑ Have a non-slip surface.
- ☑ Protruding objects may not reduce the required clear width of an accessible route and also must meet the following criteria:
  - With leading edges at or below 27 inches above finished floor (AFF), objects may protrude any amount.
  - With leading edge between 27 inches and 80 inches AFF, objects shall protrude no more than 4 inches.
  - Post- or pylon-mounted objects may overhang 12 inches from 27 inches to 80 inches AFF.

  Local codes should also be consulted concerning protruding objects in relation to life safety.
- ☑ Walks, halls, corridors, etc., must have a minimum headroom of 6 feet, 8 inches.
- ☑ Any carpeting must be firmly attached to substrate.

Curb Ramps

To be considered accessible, curb ramps shall

- ☑ Have a minimum width of 36 inches (exclusive of flared sides).
- ☑ Have a slope no greater than 1:12 (see special circumstances described below).
- ☑ Have no abrupt drop of more than 1/4 inch at the intersection of the street and curb ramp (up to 1/2 inch by beveling).
- ☑ Have flared sides if pedestrians are likely to approach from the side and there is no guardrail.
- ☑ If sides are flared, have a slope no steeper than 1:10 (1:12 under certain circumstances).
- ☑ Have a firm, non-slip finish.
- ☑ Have a detectable warning.

Parking Spaces

Parking spaces signed and reserved for disabled people shall

- ☑ Have a level transfer area adjacent to the car of not less than 48 inches (8 feet if designated for van parking). An 8-foot transfer aisle will accommodate both cars and vans.
- ☑ Be as close as possible to the accessible entrance of the building served and connected by an accessible path to that building.
- ☑ Not require crossing behind vehicles to reach an accessible path of travel.
- ☑ Have a vertical clearance of 9 feet, 6 inches at accessible loading zone, parking spaces, and path of travel.

The following table shows the minimum number of accessible parking spaces required by ADAAG. This minimum number need not be provided in the particular lot; they may be provided in a different location if equivalent or greater accessibility—in terms of distance from an accessible entrance, cost, and convenience—is ensured. Each accessible space must meet width guidelines and be adjacent to an accessible transfer aisle.

Total Spaces in Lot	*Required Minimum Number of Accessible Spaces*
1-25	1
26-50	2
51-75	3
76-100	4
101-150	5
151-200	6
201-300	7
301-400	8
401-500	9
501-1,000	2% of total
1,001+	20, +1 for each 100 over 1,000

Gratings

If located in a walking surface, gratings shall

- ☑ Not have spaces greater than 1/2 inch wide in one direction.
- ☑ Be oriented so that the long dimension of openings is perpendicular to the route of travel.

Certain aspects of the site cannot be ignored if the building and its programs are to be considered accessible. Once the accessible building entrance is chosen (see Chapter 2), it is important to ensure that a person with a mobility disability can get to the facility. This path of travel has to originate from one of three places: a vehicular drop-off spot, a parking spot, and/or an accessible path of travel linking the building with another accessible building.

If this path of travel crosses a roadway, curb ramps will be required so that there is a smooth transition between the two levels. If there are islands in the roadway, these will also have to be made accessible with curb ramps.

A safe slope for a curb ramp is 1:12. If the slope is steeper than this, a person using a wheelchair could be thrown backward as he or she moves up the curb ramp. The UFAS, ANSI, and ADAAG standards allow a steeper slope in existing construction only under the following specific circumstances:

- Steeper than 1:10 but no steeper than 1:8, but only for a maximum 3-inch rise and 24-inch run. (A slope of greater than 1:8 is not allowed under any circumstances.)
- Steeper than 1:12, but no steeper than 1:10, but only for a maximum rise of 6 inches and a maximum run of 60 inches.

The lip where the curb ramp intersects the street should not be any higher than 1/2 inch beveled (preferably 1/4 inch). If traffic is likely to approach the curb ramp from a 90-degree angle to the slope section, the sides should be flared, with a minimum slope of 1:10. The surface of the curb ramp should have a rough broom finish, both to alert a blind person that he or she is approaching the street and to provide better traction in inclement weather.

Since many disabled people now use vans for transportation, consideration should be given to the additional space, in both height and width, that these vans occupy. The height of the accessible van requires that attention be paid to obstructions not only at the parking space itself, but also in the vehicular path of travel leading to the parking space. Parking structures often do not meet this 9-1/2 foot height requirement. The operation of the wheelchair lift on many vans also requires at least 8 feet to maneuver and approach or leave the lift.

For a path of travel to be considered accessible, it must be stable, firm, and without sections that create vertical drops of more than 1/4 inch. In addition, there should be no abrupt drop-offs to the sides of these paths without a protective rail and/or curb. The minimum width of an exterior path should not be less than 48 inches. The slope of this accessible path cannot exceed 1:20 without it being considered a ramp and having to meet requirements for ramps given in Chapter 2, The Building Entrance.

If at all possible, there should be no gratings in these paths of travel. If there is an existing grate, it should be replaced if the openings in any one direction are greater than 1/2 inch. If the openings are elongated, the grate should be placed so that the long dimension is perpendicular to the dominant direction of travel.

Figure 1-1. Typical New Concrete Walk Details

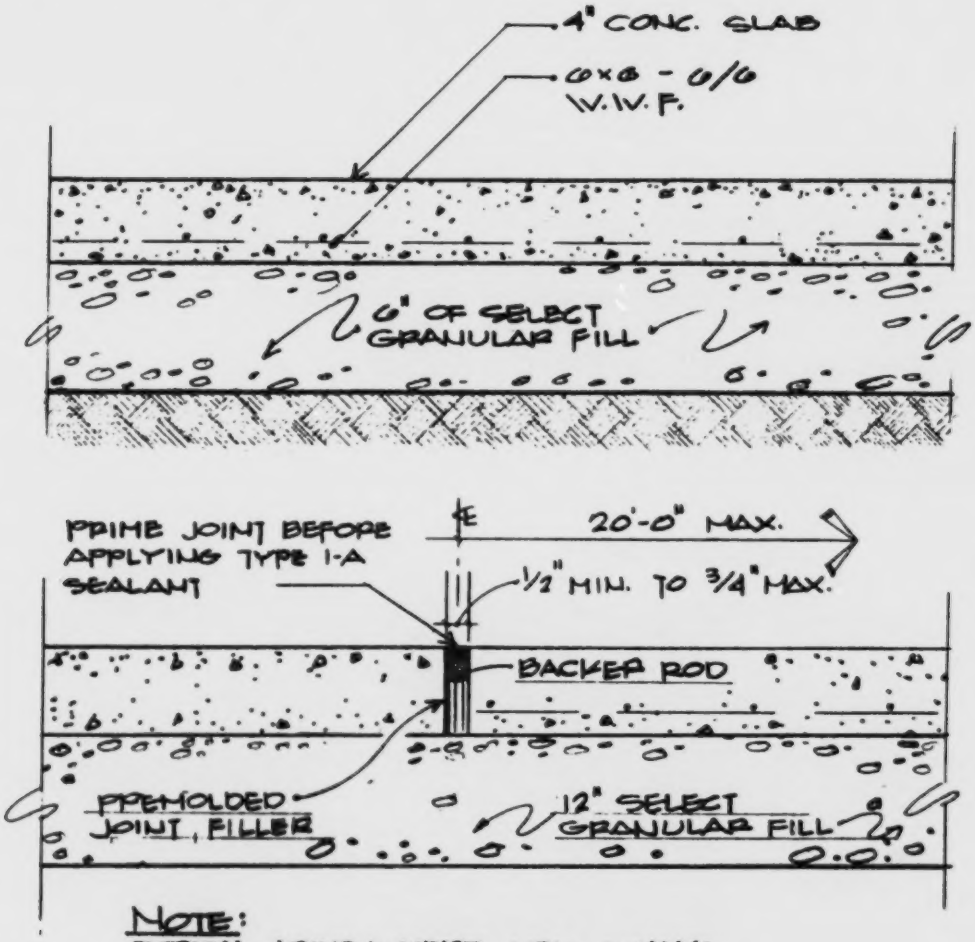

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Figure 1-2. Typical Asphalt Pavement Detail

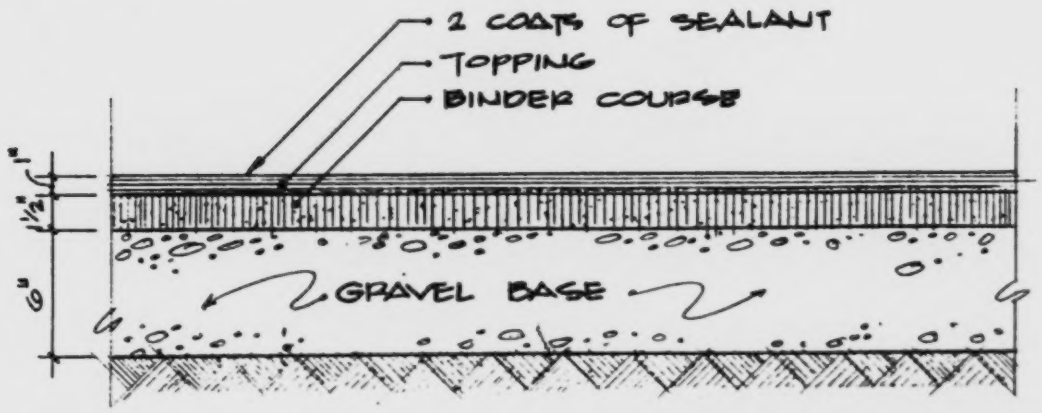

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Figure 1-3. Typical Curb Ramp Details

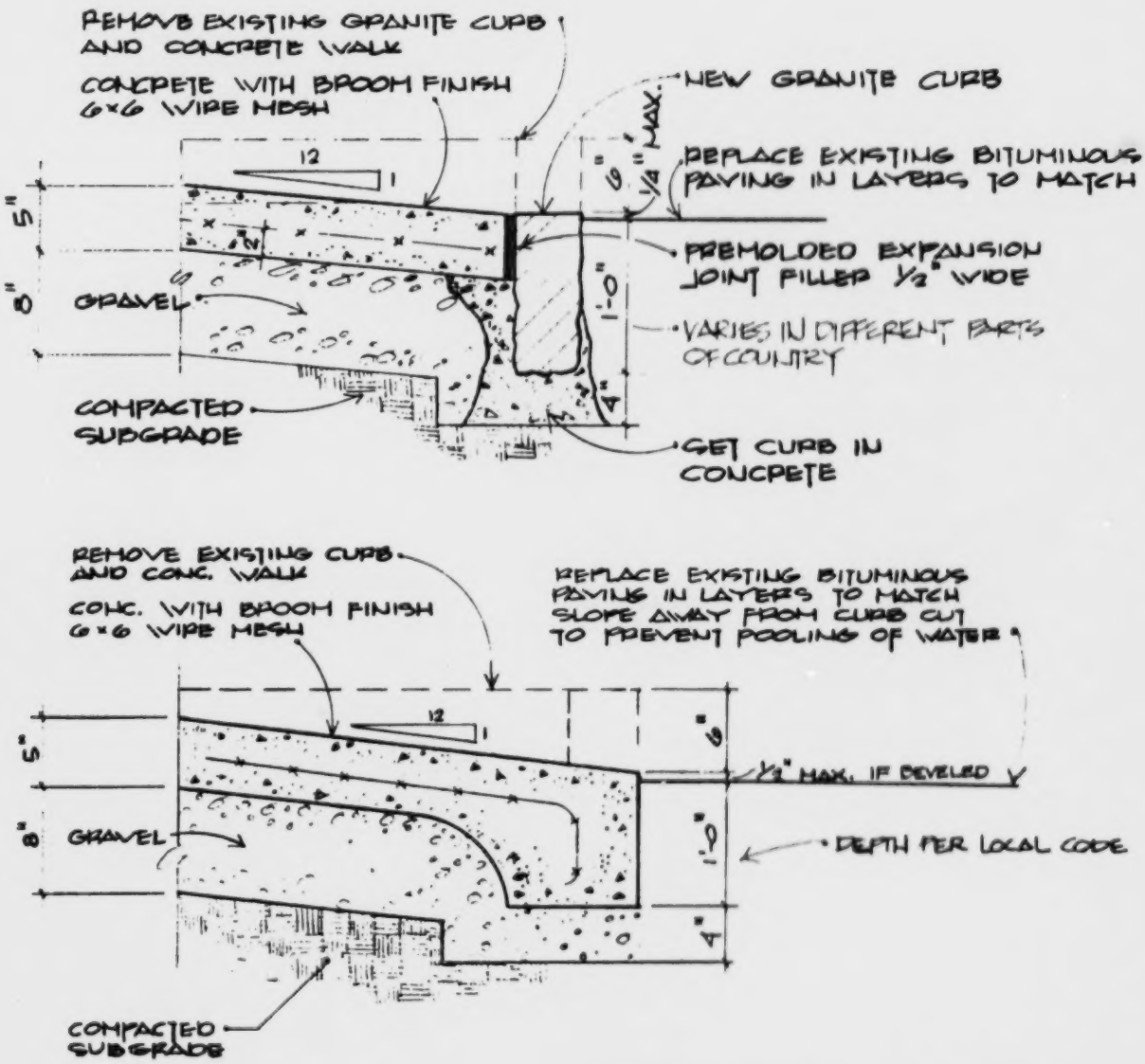

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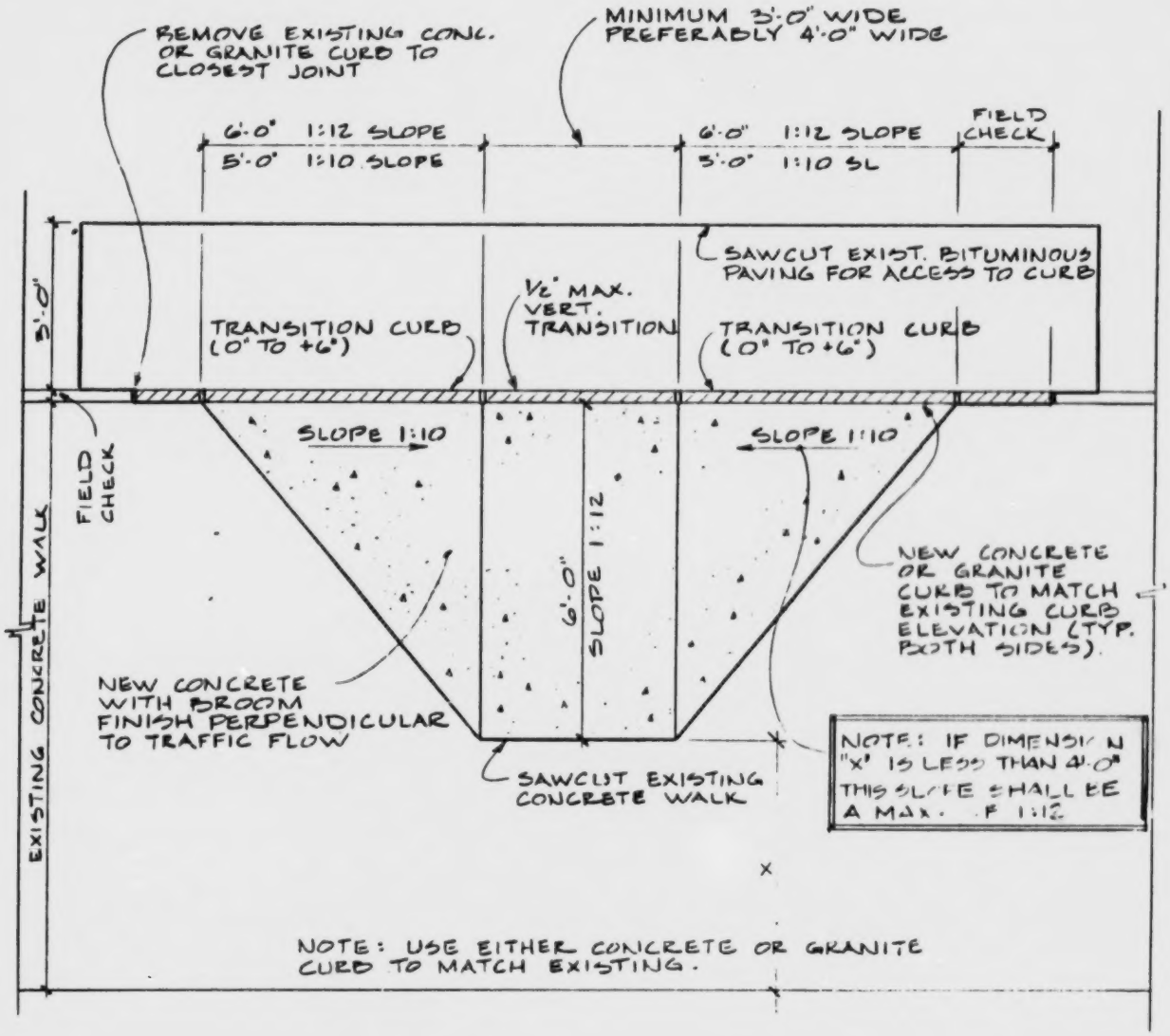
Figure 1-4. Detail of Curb Ramp at Street


REMOVE EXISTING CONC. OR GRANITE CURB TO CLOSEST JOINT
MINIMUM 3'-0" WIDE PREFERABLY 4'-0" WIDE
6'-0" 1:12 SLOPE
5'-0" 1:10 SLOPE
6'-0" 1:12 SLOPE
3'-0" 1:10 SL
FIELD CHECK
SAWCUT EXIST. BITUMINOUS PAVING FOR ACCESS TO CURB
1/2" MAX. VERT. TRANSITION
TRANSITION CURB (0" TO +6")
TRANSITION CURB (0" TO +6")
6'-0"
FIELD CHECK
SLOPE 1:10
SLOPE 1:12
SLOPE 1:10
EXISTING CONCRETE WALK
NEW CONCRETE OR GRANITE CURB TO MATCH EXISTING CURB ELEVATION (TYP. BOTH SIDES).
NEW CONCRETE WITH BROOM FINISH PERPENDICULAR TO TRAFFIC FLOW
SAWCUT EXISTING CONCRETE WALK
NOTE: IF DIMENSION "X" IS LESS THAN 4'-0" THIS SLOPE SHALL BE A MAX. OF 1:12
X
NOTE: USE EITHER CONCRETE OR GRANITE CURB TO MATCH EXISTING.

TYPICAL 6" CURB

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Figure 1-5. Detail of Curb Ramp Alternate

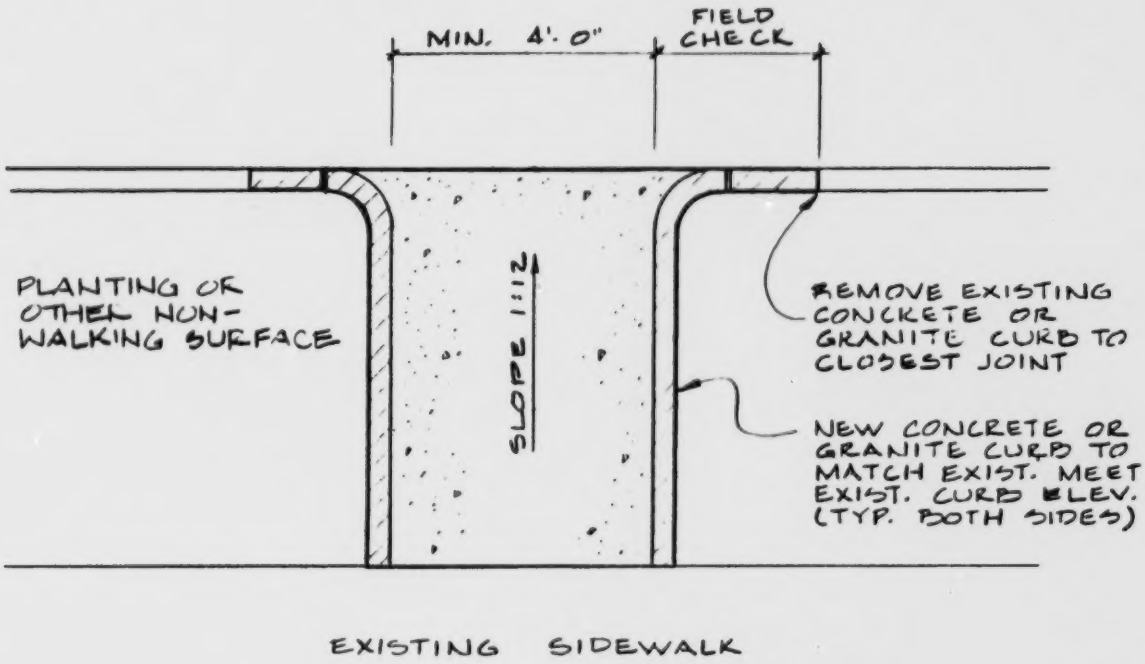
MIN. 4'. 0"
FIELD CHECK
PLANTING OR OTHER NON-WALKING SURFACE
SLOPE 1:12
REMOVE EXISTING CONCRETE OR GRANITE CURB TO CLOSEST JOINT
NEW CONCRETE OR GRANITE CURB TO MATCH EXIST. MEET EXIST. CURB ELEV. (TYP. BOTH SIDES)
EXISTING SIDEWALK

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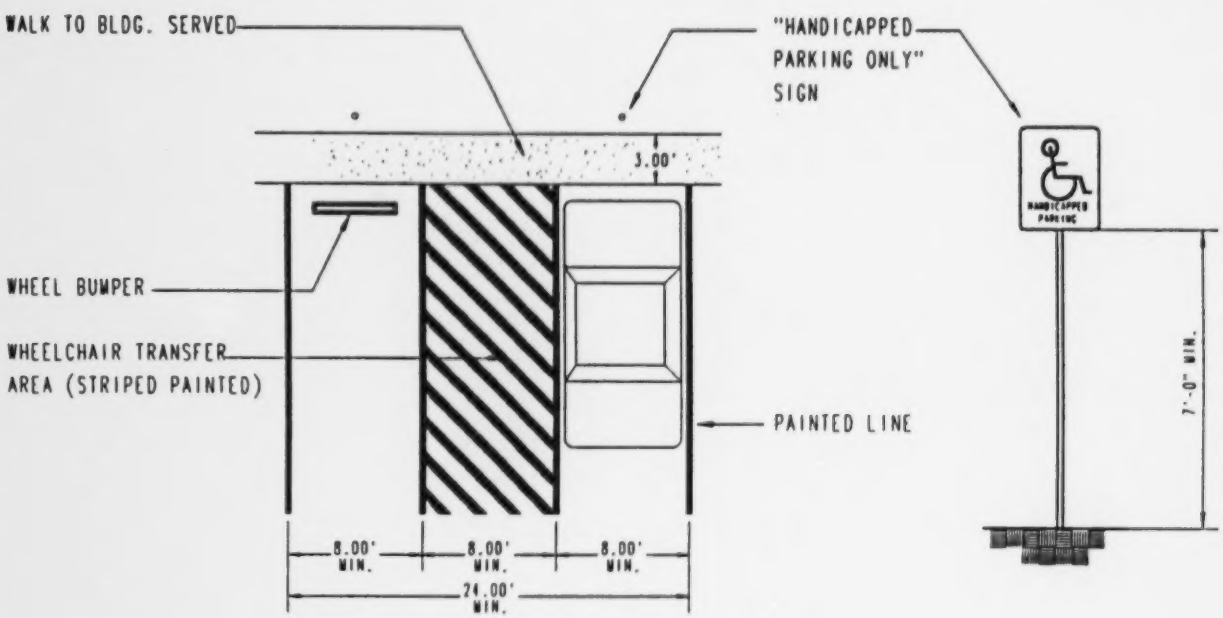
Figure 1-6. Parking Space and Access Aisle With Sign



PARKING AT SAME LEVEL AS TRAVEL PATH

(TWO ACCESSIBLE PARKING SPACES SHARE SINGLE WHEELCHAIR TRANSFER AREA)

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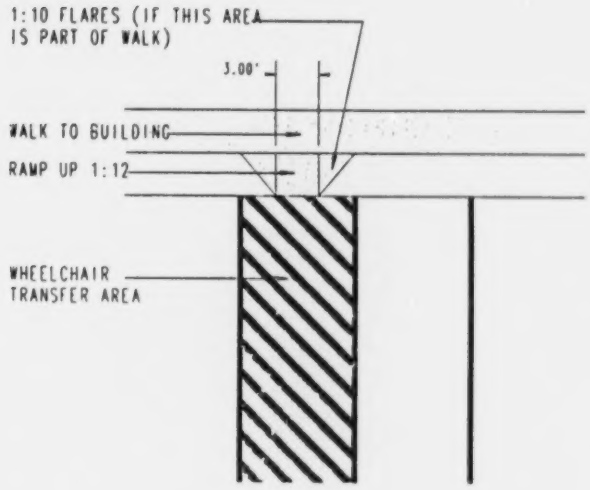
Figure 1-7. Parking Space With Curb Ramp



CONNECTION AT PARKING SPACE AND PATH OF TRAVEL WHEN THERE IS A CHANGE OF LEVEL

Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Chapter 2

The Building Entrance

Selecting the Accessible Entrance

Several conditions need to be considered when selecting the accessible entrance. The entrance either should be accessible at the time of the inspection, or it should be the one most easily made accessible (for example, an entrance with one step rather than six). In some instances, because of the building's interior layout, you might have to evaluate several entrances to determine which is the best. If, for example, the entrance you have chosen does not provide accessibility to major parts of the building, or if it is located on the opposite side of the building from the major exterior campus circulation routes, you may have to select another entrance.

Numbers and Types of Entrances

At least one major or primary entrance shall be provided when modifying an existing building to make it accessible. A major or primary entrance is defined as

- ☑ Any access point to a building, portion of a building, or facility used for the purpose of entering, but does not include doors to fire stairways, other emergency exits, or doors used for servicing the building, unless so designated and qualified as a primary entrance.
- ☑ It shall be reached by an accessible route of travel from a parking lot, public sidewalk, or vehicular drop-off point.
- ☑ Entrances shall not be placed where the interior path of travel would lead through hazardous or service areas such as kitchens, mechanical spaces, trash storage rooms, shops, etc.

More than one accessible primary entrance per building is required if:

- ☑ There is no elevator in the building, and both floors are required to be accessible; i.e., there are entrances at both the first and second levels of a two-story building.

  Note: This requirement would only be applicable if there was no need for accessible internal circulation between these floors. For example, classroom space and library space within the same building would not necessarily have to have interior circulation between them. On the other hand, a gymnasium and a locker room in a physical education facility would require an internal means of circulation, as it would not be reasonable to require a student in a wheelchair to use an external circulation path in cold or rainy weather, especially if he or she is dressed in gym clothes.
- ☑ There are areas in the overall building structure that are required for accessibility, but cannot be reached internally from the accessible primary entrance; and the activities that take place in these distinct and separate spaces within the building do not require accessible interior circulation.

A topic that often comes up when discussing access to buildings is emergency egress. Most building codes require more than one exit to meet emergency evacuation of the building in case of fire. Where local codes require more than one means of egress from any space or room, then an equal number of accessible means of egress shall also be provided. These means of egress shall be readily accessible from all accessible rooms and spaces.

The following factors should also be considered when reviewing the entrance requirements:

- ☑ At least one must be a ground floor entrance.
- ☑ Public entrances are any entrances that are not loading or service entrances.
- ☑ Accessible entrances must be provided in a number at least equivalent to the number of exits required by the applicable building/fire codes.

Figure 2-1. Upper/Lower Entrances

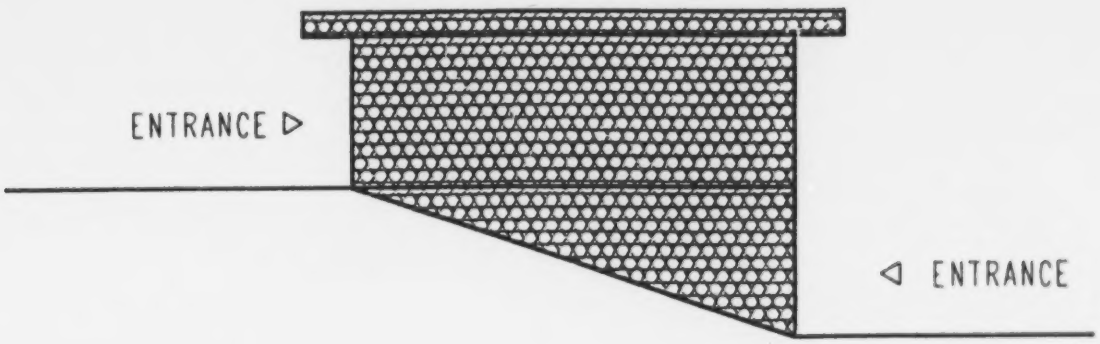
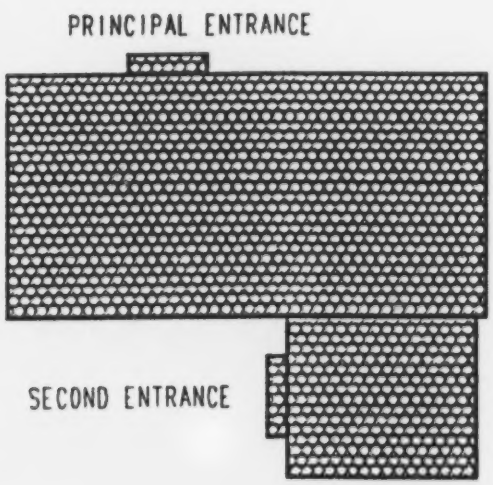


Figure 2-2. Principal and Secondary Entrances



- ☑ An accessible entrance must be provided to each tenancy in a facility (for example, individual stores in a strip shopping center, or bookstores, bowling alleys, or movie theaters in a student union).
- ☑ One entrance may be considered as meeting more than one of the above requirements.
- ☑ Where feasible, accessible entrances shall be the entrances used by the majority of people visiting or working in the building.

Because entrances also serve as emergency exits whose proximity to all parts of buildings and facilities is essential, it is preferable that all entrances be accessible.

Additional vertical means of egress often are not accessible to disabled people because of stairs and other barriers, such as rules that elevators are not to be used in case of fire. On some campuses, accessible areas of rescue assistance are provided in order to provide a safe area where a disabled person may wait until rescued (more specific information is available in ADAAG 4.3.11). These may be horizontal exits to other buildings or other areas protected by fire walls and opening protectives. Careful thought must be given to emergency circumstances and the means available to evacuate a disabled person. In addition, every campus must have an emergency evacuation plan to deal with these situations.

In renovations of existing facilities, every attempt should be made to make as many entrances as possible accessible. More than one accessible primary entrance per building needs to be provided if

- ☑ The major accessible pedestrian approaches are at opposite ends of the building and the exterior circulation path is more than 200 feet.
- ☑ The vehicular and pedestrian paths of travel are distinct and separate. If a building parking lot provides assigned spaces for accessible parking, and the principal accessible entrance is not accessible to this lot, another closer accessible entrance will have to be provided. In this case the second entrance to be made accessible might be a service entrance, if this entrance provides the closest access. Care should be taken so that the safety of the disabled person is ensured and the path of travel from this service entrance into the building is not through hazardous or service space, other than a service corridor.

Figure 2-3. 200-Foot Situation

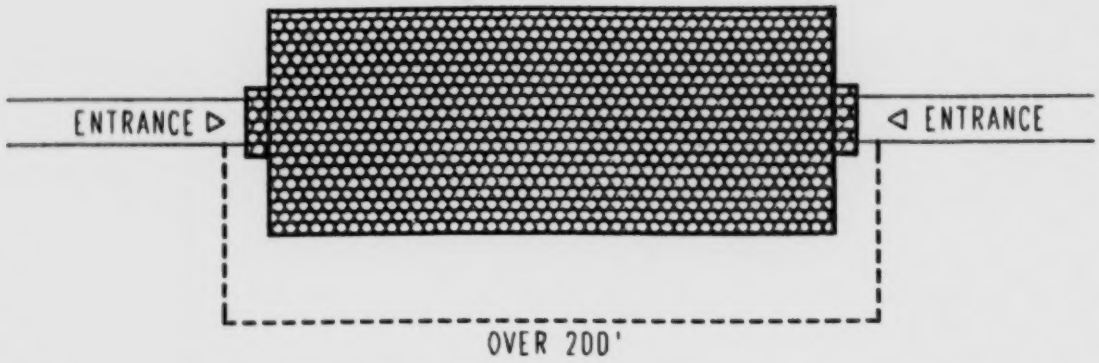
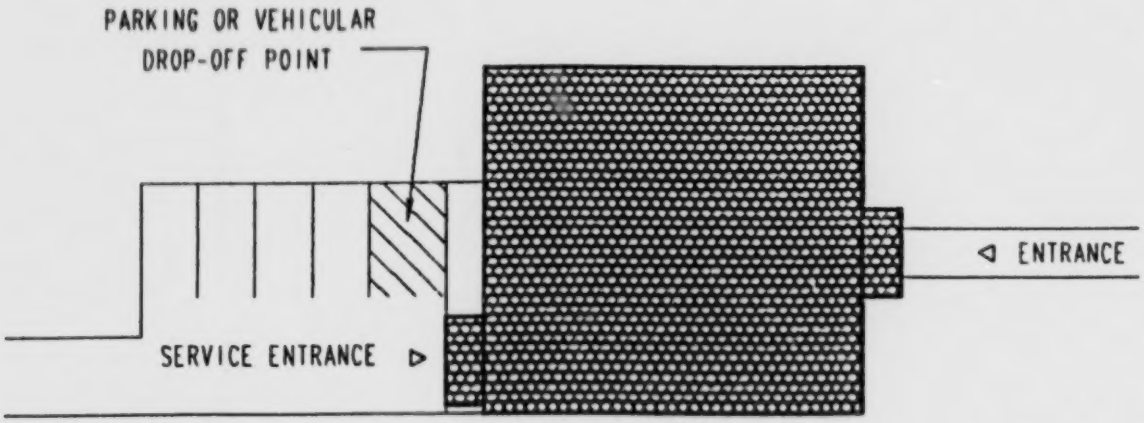


Figure 2-4. Vehicular and Pedestrian Entrance



Note: A secondary entrance such as a side or service entrance may be renovated for use by disabled people when a separate primary entrance is provided and the building area accessible from the secondary entrance is also accessible by the primary entrance. Again, an entrance or path of travel for disabled people shall not be through hazardous or service space, other than a service corridor.

Ramp Changes of Level

When there is an abrupt change of level such as steps, a ramp can provide access to those who use a wheelchair. It is extremely important that any time a ramp is constructed, it is designed properly; otherwise the ramp itself becomes a barrier. Cross slopes and scuppers should be used on exterior ramps to prevent storm water from ponding on the ramp surface. At a minimum, ramps must meet the following standards:

- ☑ Minimum clear width of 36 inches.
- ☑ Slope not to exceed 1:12.

Exceptions for modifying existing facilities:

- Steeper than 1:10 but no steeper than 1:8, and only for a maximum 3-inch rise and 24-inch run. (A slope greater than 1:8 is not allowed under any circumstances.)
- Steeper than 1:12 but no steeper than 1:10, and only for a maximum rise of 6 inches and a maximum run of 60 inches.

☑ Curbs, if provided, shall be a minimum of 2 inches in height above the ramp surface.

☑ If rise is greater than 6 inches or horizontal projection of greater than 6 feet inches, handrails shall be provided on both sides.

☑ Handrail top shall be between 34 and 38 inches above ramp level.

☑ Inside handrail on switchback ramp shall always be continuous.

☑ In cases where the handrail is not continuous, it shall extend 12 inches (parallel with the floor) beyond the top and bottom of the ramp segment. Ends of handrails either shall be rounded or return smoothly to the floor, wall, or post.

☑ The clear space between the wall and the inside surface of the handrail shall be 1-1/2 inches. The grip surface shall be continuous and shall not rotate within the handrail fitting.

☑ The surface shall be non-slip (especially important on exterior use where there is likely to be storm water and ice). Cross slope should not exceed 1:50.

☑ Where a ramp meets a door, the standards shown in Figure 2-5 should be used.

☑ Level areas the width of the ramp and a minimum of 60 inches in length shall be provided every 30 inches in rise and at the top and bottom of each ramp segment. If the ramp changes direction at a landing, the level area has to be a minimum of 5 feet square.

☑ No abrupt changes of level greater 1/4 inch (1/2 inch if beveled) where the ramp meets level areas.

Note: Where there are abrupt changes of level up to 6 inches, the strict requirements for handrails are not applicable as indicated above, but it is not a good idea to have any abrupt drop-off on the sides of the ramp. These should be protected either by grading or rails. Any change of level greater than 1 inch at a door must have a level area as shown in Figure 2-5.

This chapter features ramps that are required in many instances because of existing steps along accessible paths of travel and at the accessible entrance. Several accessible exterior ramps and details of these ramps are shown. Depths of footings will vary depending upon where the ramp is constructed.

Ramp A Concept. This ramp is constructed of concrete with a metal form for the ramp slab. It should be used in areas where severe frost is likely to occur.

Ramp B Concept. Another less elaborate ramp can be constructed, as shown in Figure 2-16. This design can be used if there is less chance for frost, and if the grade can follow the ramp so that the ramp, in effect, becomes a sidewalk ramp. Ramp width, rails, slope, and the level platform when approaching a door still must be followed.

Snow and Ice Removal. Where winter weather is a factor, there are several ways that snow and ice can be removed besides mechanical means. Electric elements, hot water, or steam pipes under the slab of the ramp and its level areas, or infrared heat lamps, may be used to prevent ice and snow buildup. Although some local or state laws may prohibit the use of these systems in an effort to save energy, most of them can be automatically controlled by temperature- and moisture-sensing devices so that the annual energy use is not significant. In northern climates where blowing snow is a problem, temporary snow fences or actual enclosures can be used to decrease the buildup. In addition, a covered vestibule should be considered at the top of the ramp and its junction with the entrance door. Gutters or rain diverters need to be installed if the building roof design sheds water onto a ramp.

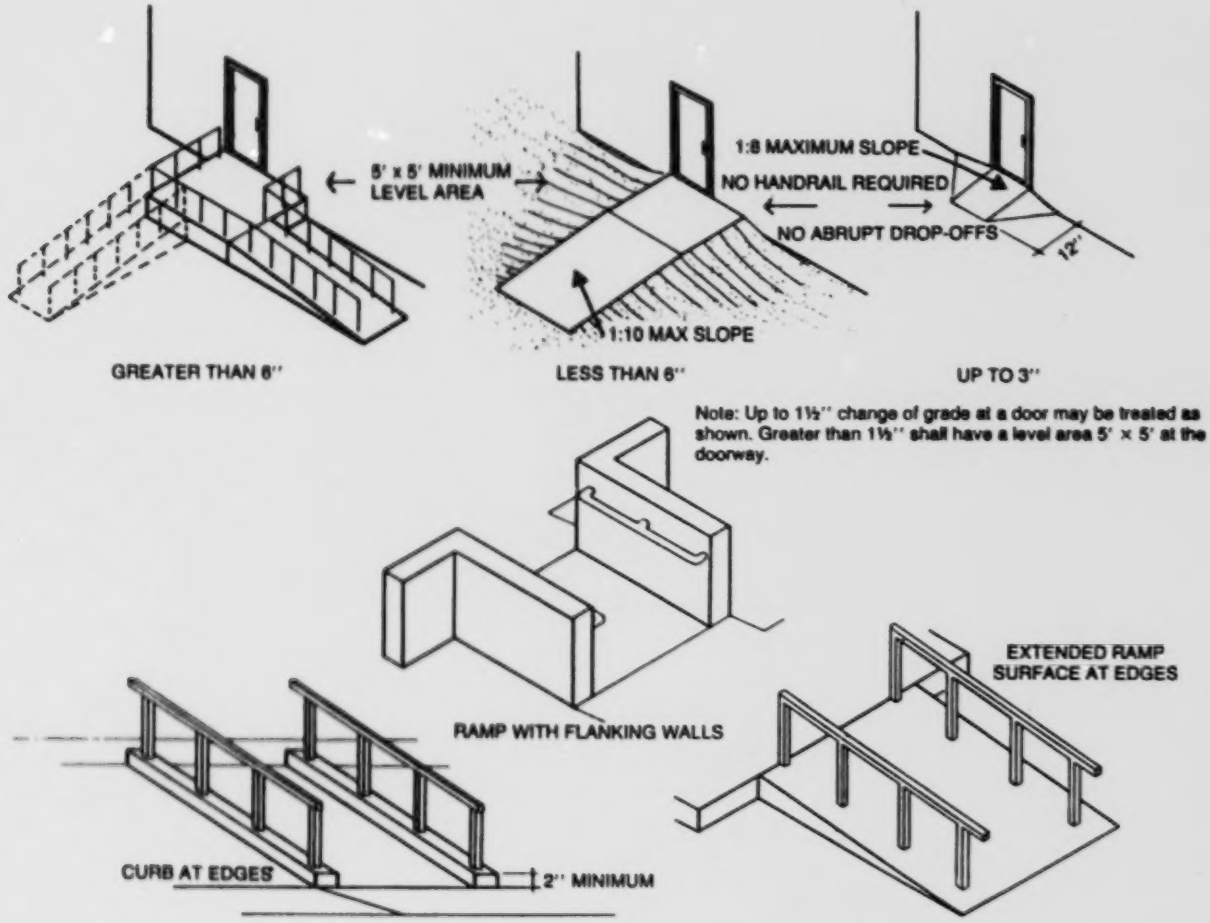
Stairs

For those disabled individuals who can use stairs, the major problem is the projecting nosing, which can catch the toe of a person with a leg brace. Since climbing stairs is impossible for people in wheelchairs, they must use elevators to reach upper levels of a building. In situations where an elevator is used to reach upper levels, it is not necessary to provide accessible stairs.

Stairs should be modified when a ramp is required at an entrance that is being made accessible. In this situation, only two means of vertical circulation are provided: the ramp and the stair.

The ramp provides a person using a wheelchair a means of access, but the stair, if not designed properly, can be a barrier to some people with leg braces who cannot negotiate a ramp. If there is another accessible entrance with an existing stair that meets the stair criteria and connects to an interior accessible path of

Figure 2-5. Examples of Accessible Ramps


5' x 5' MINIMUM LEVEL AREA
1:8 MAXIMUM SLOPE
NO HANDRAIL REQUIRED
NO ABRUPT DROP-OFFS
1:10 MAX SLOPE
GREATER THAN 6"
LESS THAN 6"
UP TO 3"
Note: Up to 1½" change of grade at a door may be treated as shown. Greater than 1½" shall have a level area 5' × 5' at the doorway.
RAMP WITH FLANKING WALLS
EXTENDED RAMP SURFACE AT EDGES
CURB AT EDGES
2" MINIMUM

travel, it is not necessary to provide a new accessible set of steps by the ramp.

Stair standards include:

- ☑ No projecting nosing.
- ☑ Handrails 34 to 38 inches above the stair tread.
- ☑ Handrails that extend at least 12 inches horizontally beyond the ends of the stairs, providing they do not become hazards themselves.
- ☑ Treads and risers with uniform widths and heights.
- ☑ Stair tread of no less than 11 inches riser-to-riser.
- ☑ No open risers.

Figure 2-6. Ramp Changes of Level for 1:12 Ramp

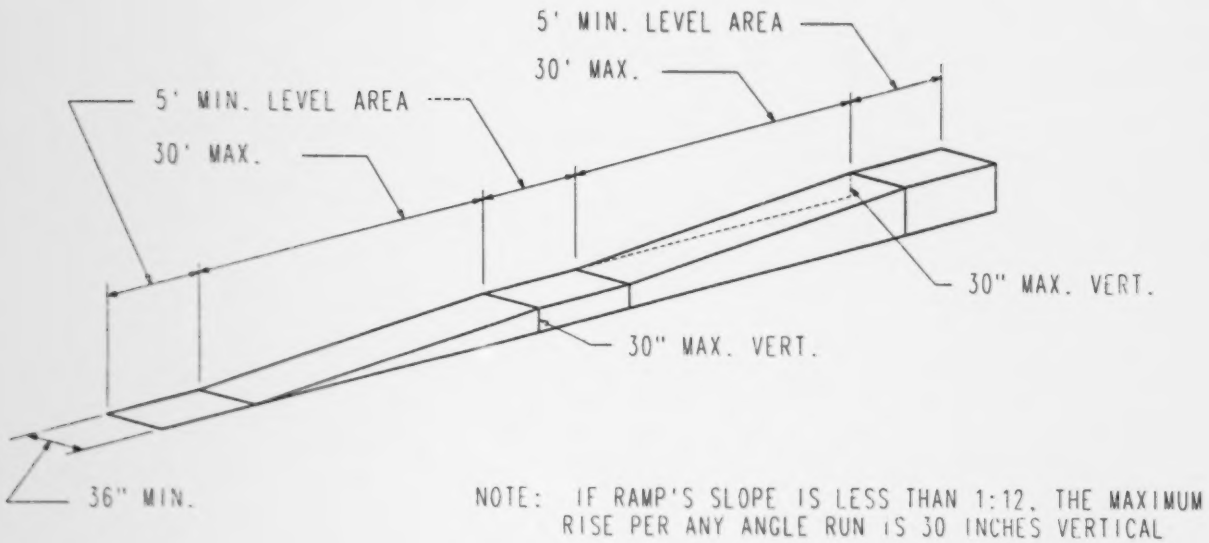
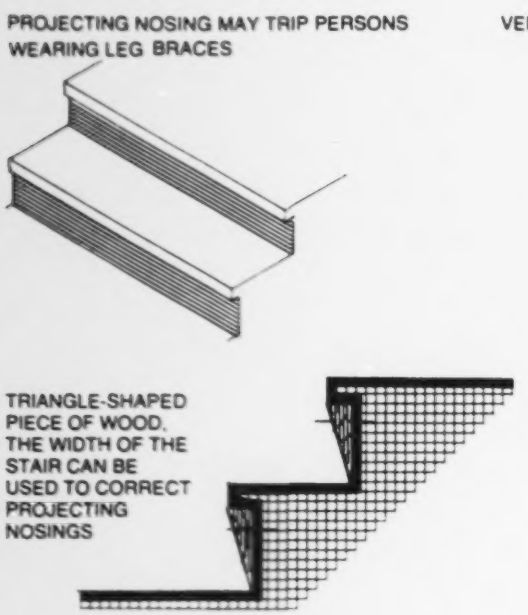
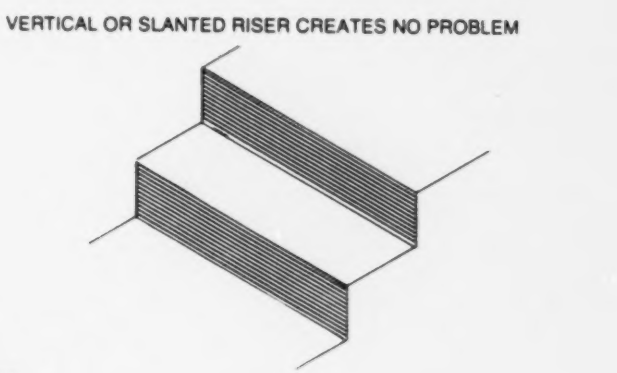

5' MIN. LEVEL AREA
30' MAX.
5' MIN. LEVEL AREA
30' MAX.
30" MAX. VERT.
30" MAX. VERT.
36" MIN.
NOTE: IF RAMP'S SLOPE IS LESS THAN 1:12, THE MAXIMUM RISE PER ANY ANGLE RUN IS 30 INCHES VERTICAL

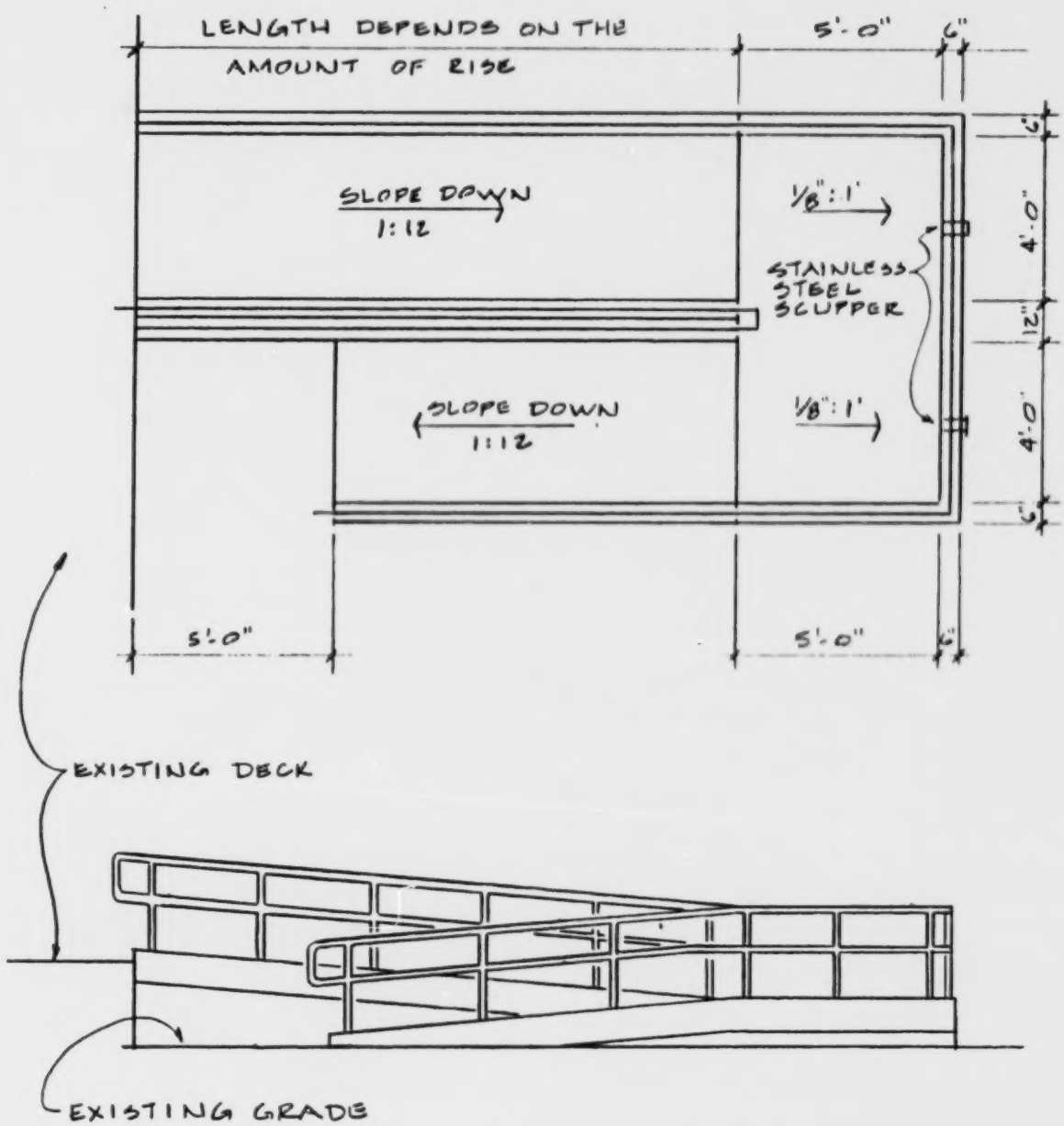
Figure 2-7. Making Stairs Accessible


PROJECTING NOSING MAY TRIP PERSONS WEARING LEG BRACES
TRIANGLE-SHAPED PIECE OF WOOD, THE WIDTH OF THE STAIR CAN BE USED TO CORRECT PROJECTING NOSINGS



Note: When ramps and stairs appear together in the same circulation path: the stairs should be modified to be accessible

Figure 2-8. Typical Switchback Ramp



Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 2-9. Detail of Side Wall Ramp Curb

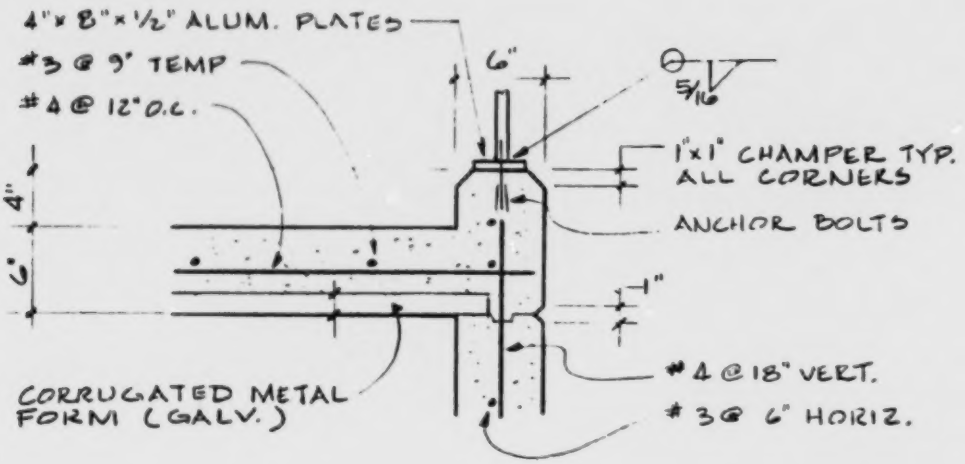


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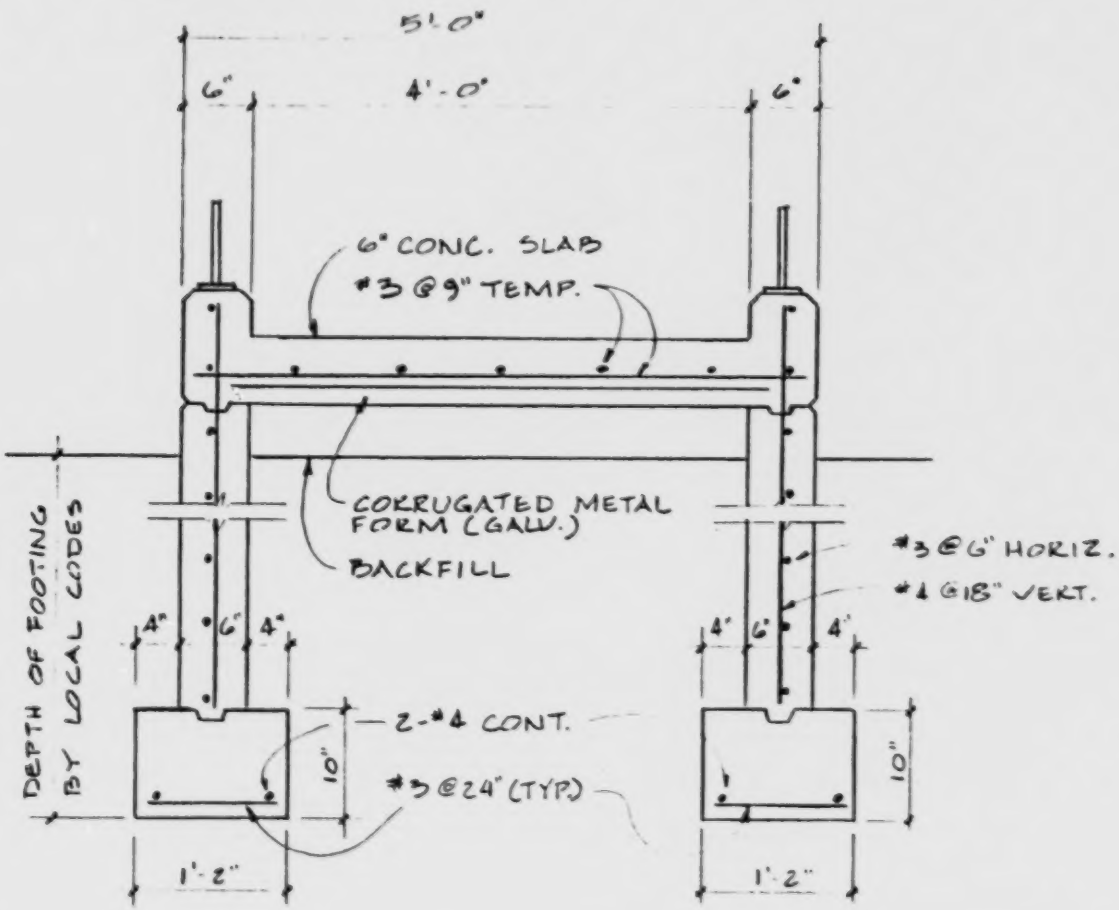
Figure 2-10. Typical Section of Single Run Ramp



Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 2-11. Typical Detail of Ramp Scupper

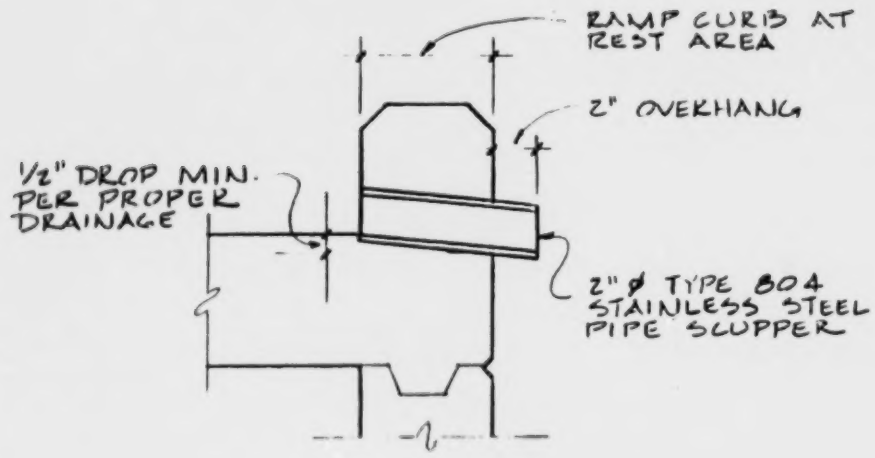


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Figure 2-12. Side Wall Ramp at Corner—Lower Leg

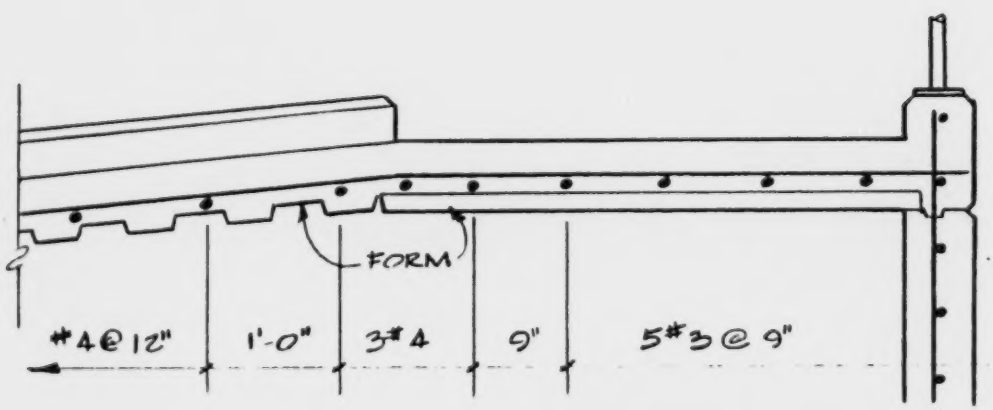

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Figure 2-13. Side Wall Ramp at Corner—Upper Leg

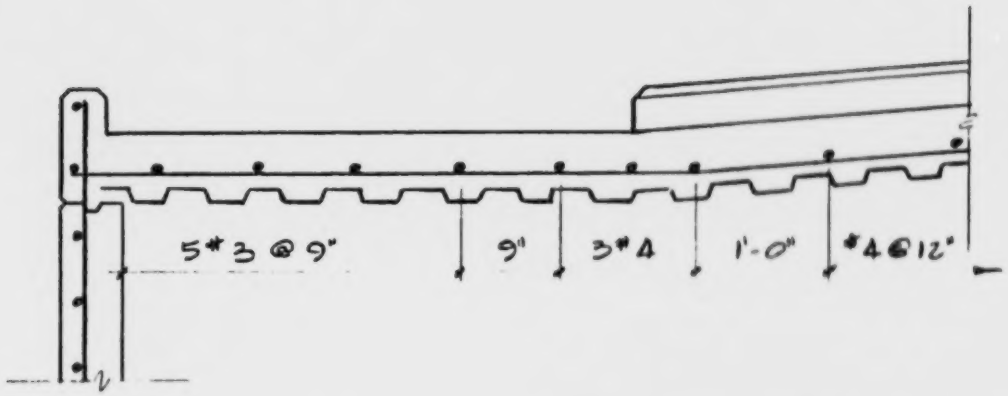

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Figure 2-14. Wall Corner Reinforcement Detail

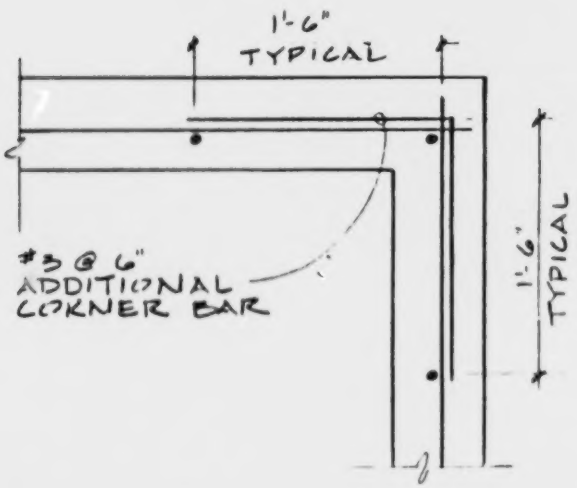

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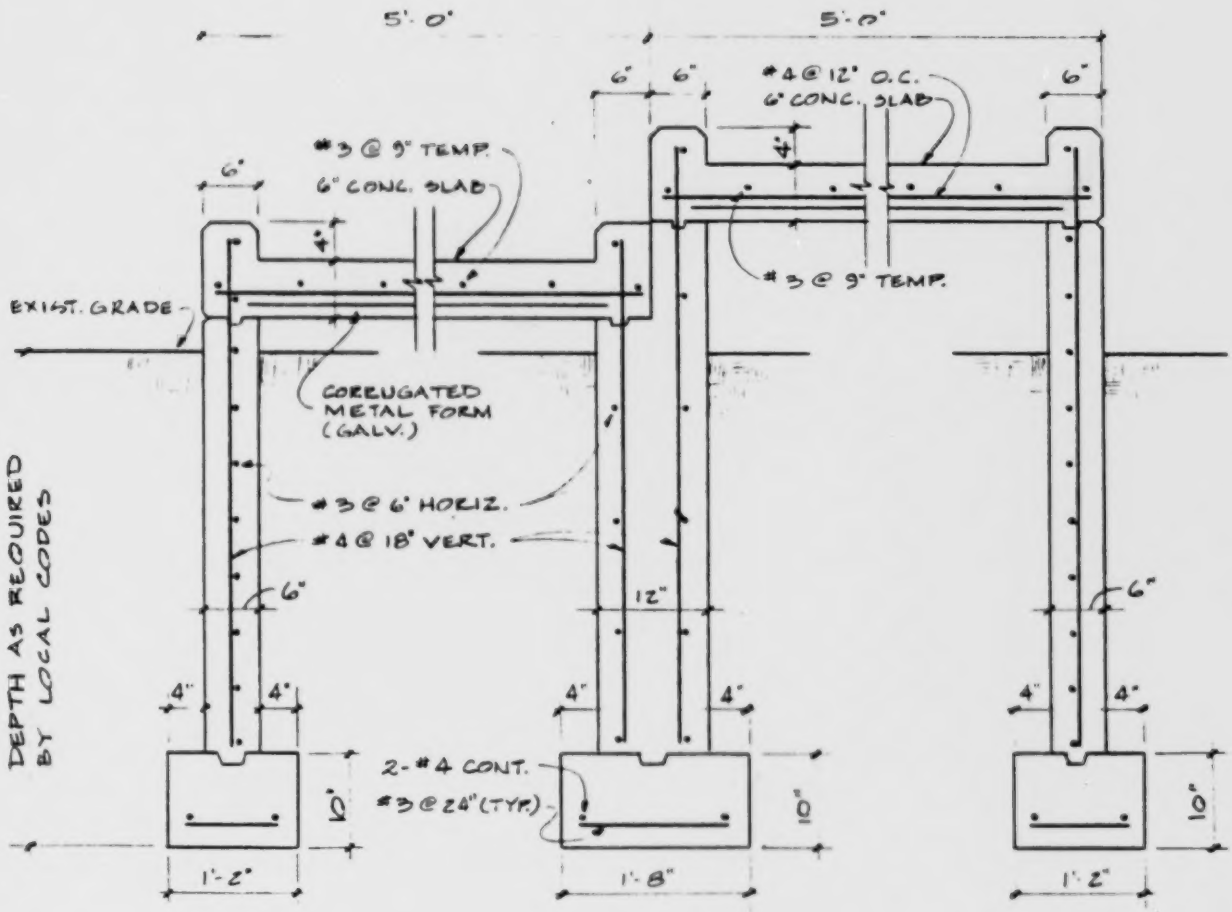
Figure 2-15. Section Through Ramp—Two Adjacent Runs



Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 2-16. Typical Grade Ramp

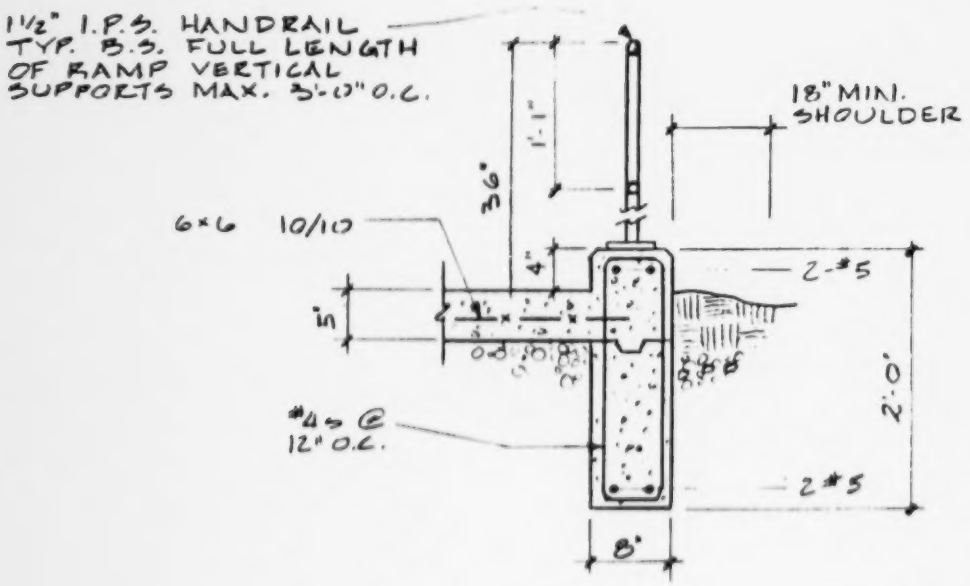


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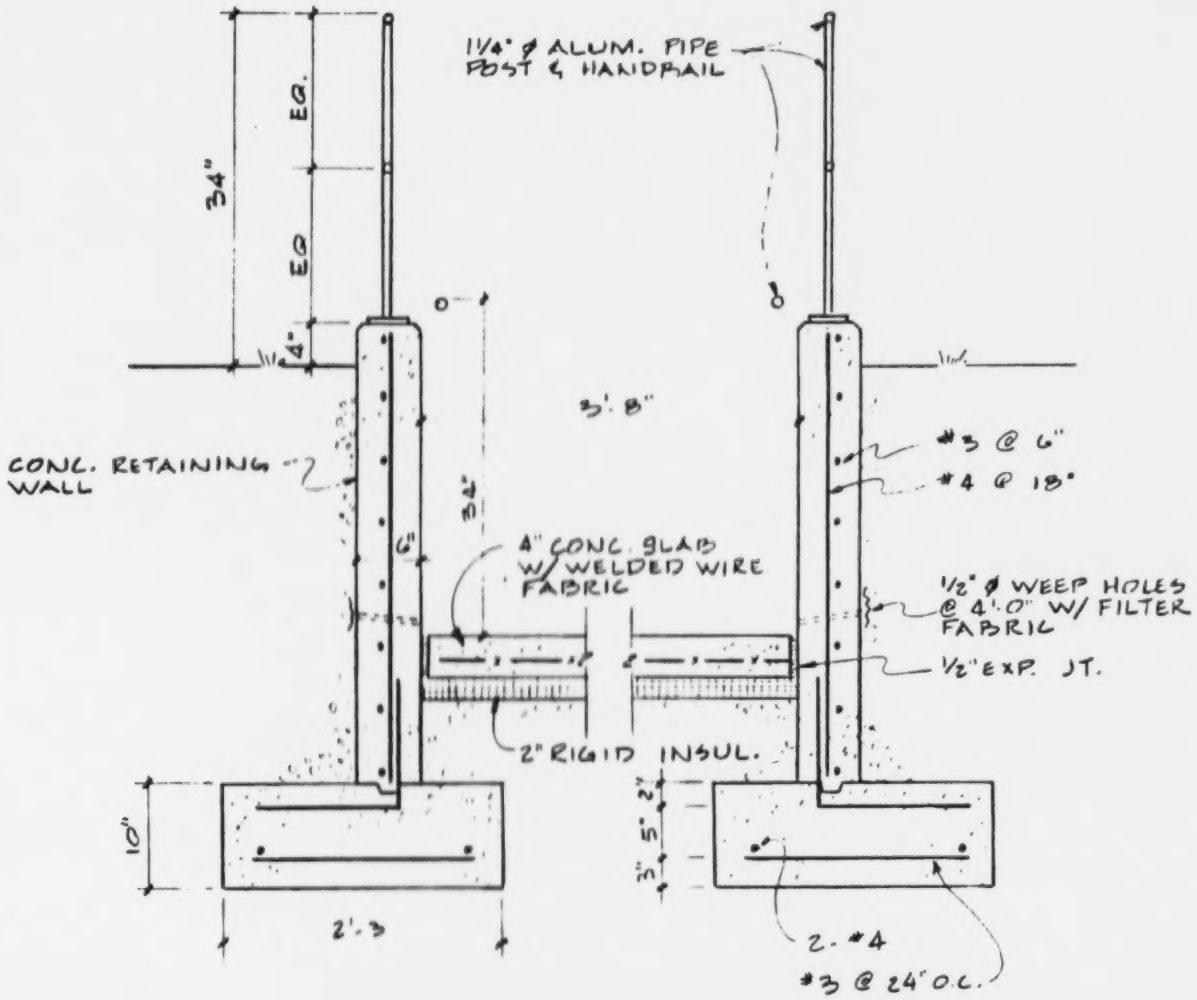
Figure 2-17. Typical Ramp Below Grade



Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

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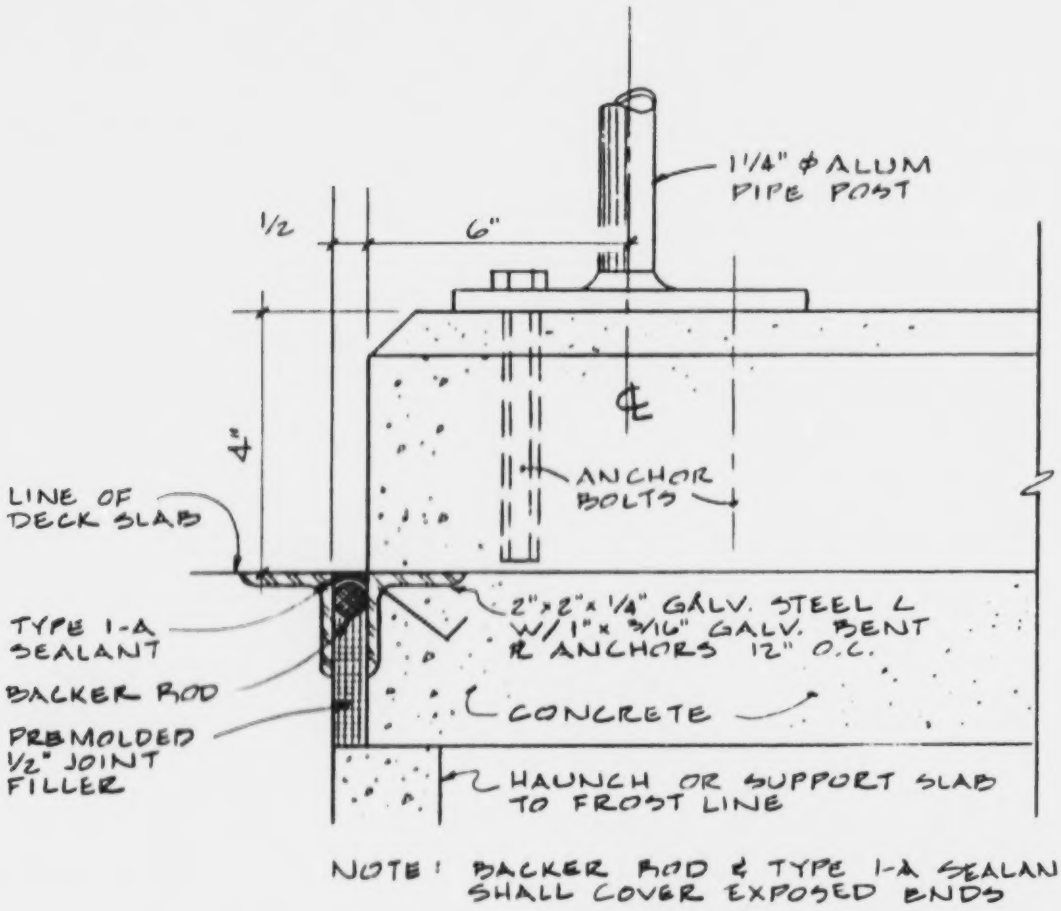
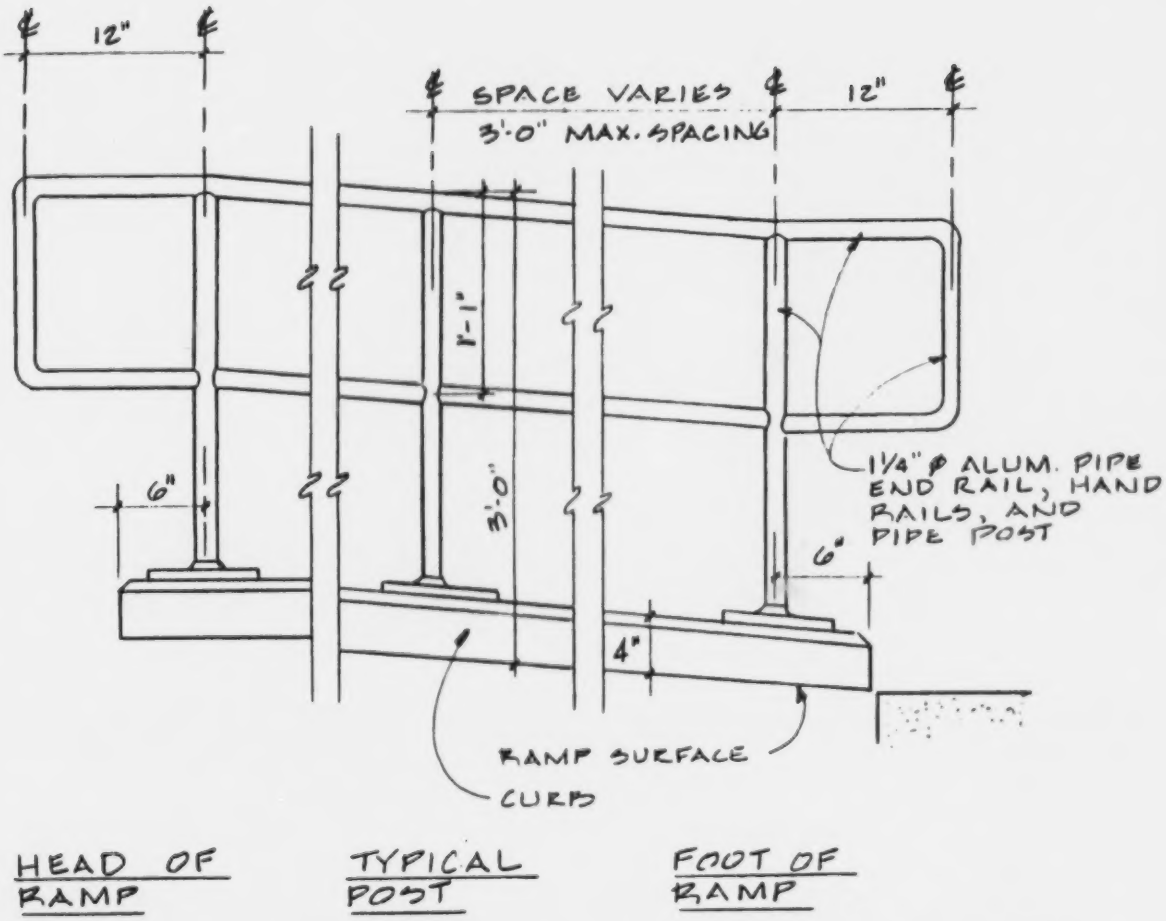
Figure 2-18. Section Where Ramp Meets Existing Deck


1¼" ϕ ALUM PIPE POST
1/2
6"
4"
℄
ANCHOR BOLTS
LINE OF DECK SLAB
TYPE I-A SEALANT
BACKER ROD
PREMOLDED ½" JOINT FILLER
2"x2"x¼" GALV. STEEL L W/ 1"x 3/16" GALV. BENT ℞ ANCHORS 12" O.C.
CONCRETE
HAUNCH OR SUPPORT SLAB TO FROST LINE
NOTE: BACKER ROD & TYPE I-A SEALANT SHALL COVER EXPOSED ENDS

Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 2-19. Partial Elevation of Ramp Railings



Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Construction Specifications

The specifications below are not complete, but they represent the sections and items that are important to include when writing specifications for handrails.

Secure handrails to walls with wall brackets and end fittings. Provide brackets with exactly 1-1/2 inch clearance from inside face of the handrail to the finished wall surface. Drill wall plate portion of the bracket to receive one bolt, unless otherwise indicated for concealed anchorage. Locate brackets as indicated or, if not indicated, at not more than 8 feet on center. Provide flush-type wall return fittings with the same projections as specified for wall brackets. Secure wall brackets and wall return fittings to building construction.

Chapter 3

Doors

All doors, interior or exterior, that are in the path of travel leading to spaces required for program accessibility must, at a minimum,

- ☑ Have a minimum clear opening of 32 inches. If the door does not require passage (for example, if it leads to a shallow closet), the clear opening may be reduced to 20 inches. (See Chapter 8, Facilities Inventory and Evaluation, for tools to measure the clear opening.)
- ☑ Have an accessible threshold that does not exceed 1/2 inch in height and is sloped, preferably 1/4 inch in height.
- ☑ Have an opening pressure that is not excessive. For exterior doors, ADAAG has not provided a figure; ANSI has a figure of 8-1/2 pounds or less. For interior doors, side-hinged and sliding, both sources specify 5 pounds of pressure or less. Power-operated or power-assisted doors are preferred on the exterior, since opening pressures often cannot be met because of wind conditions. Where fire codes require higher closing pressures for fire doors, then these more stringent requirements should be followed.
- ☑ Have usable handles or pulls.
- ☑ For non-power-operated doors, have minimum level floor areas as shown in Figure 3-3 for different door configurations.
- ☑ If the door leads to a dangerous area, have a texture on the handle.

Special Conditions

Two-leaf Doors. Entrances with two door leaves are not usable by many people with disabilities, unless one leaf meets the minimum 32-inch clear opening requirement. If both doors are power-operated, act in unison, and have no center mullion, then the clear opening provided by both doors must meet the 32-inch clear dimension. This 32-inch requirement can also be waived in existing facilities if the following specific situation exists: the doors are in a lecture hall or theater, there is no center mullion, both of the doors are held in an open position during entry/exit, and the doors are supervised by ushers.

Single-leaf Doors. Where existing single-leaf doors are normally held in an open position during entering and exiting times (such as classrooms and lecture halls), the accessible handle requirement and the space required adjacent to the handle on the pull side can be waived. It should be noted that this waiver applies only to spaces where a person would never be alone. All other requirements, such as clear width, thresholds, etc., must be met.

Door Hardware

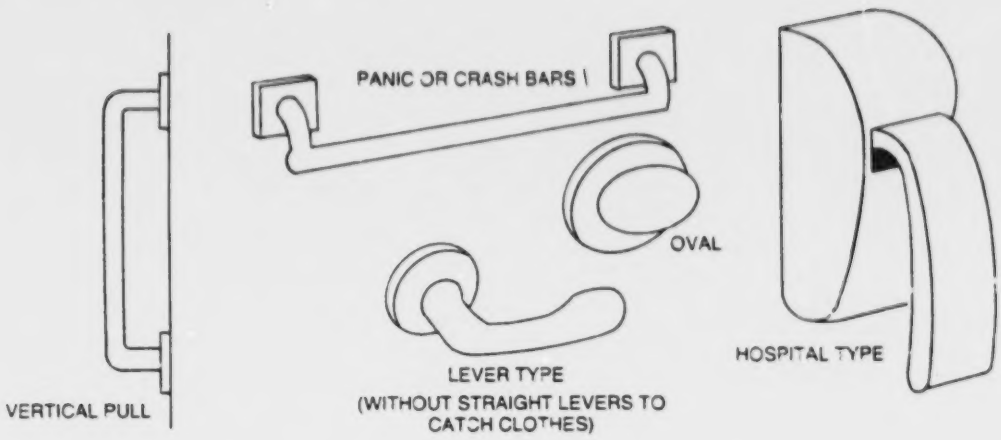
Panic hardware and other operating hardware is usually placed well above the area necessary for measuring the clear opening and therefore need not be taken into consideration. No operating hardware shall be mounted higher than 48 inches above finished floor (AFF).

Door closers should be selected that can control the closing pressure and the time it takes to close the door. This provides more flexibility to make adjustments to conditions encountered at the installation site.

Door handles, pulls, latches, locks, and other operating mechanisms on accessible doors need to be of a shape that is easily grasped with one hand. It is also important that the device not require tight grasping or pinching, or twisting of the wrist to operate. Lever-operated mechanisms or push-type mechanisms, and U-shaped pull handles are acceptable designs. Round knobs are not acceptable on accessible doors. When sliding doors are used, in their full opened position the operating handles should be exposed and usable from both sides.

Because many codes now support accessibility, lever handles are readily available in many configurations, including keyed lock sets.

Figure 3-1. Accessible Door Handles

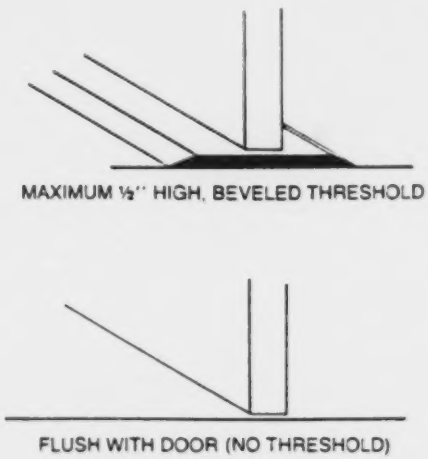


Accessible Thresholds

Any door that is required for accessibility must have a threshold that will not impede the front casters of a wheelchair from passing through the doorway. An abrupt change greater than 1/2 inch will prevent many people in wheelchairs from proceeding over the threshold, especially if they have to hold the door open at the same time. In addition to being 1/2 inch in height or less, the threshold's sides should be beveled or ramped. Accessible thresholds 1/4 inch in height are a better solution.

Weather-stripped thresholds in existing buildings often have a vertical projection to provide a backing for the door to rest against. To achieve accessibility, these thresholds would need to be replaced with accessible ones and new bottom door sweeps to provide weather stripping.

Figure 3-2. Accessible Thresholds



Power Operators

Although ADAAG reserves any requirement on exterior door closing pressure, ANSI requires an 8-1/2 pound opening pressure. This requirement is not always obtainable where wind and building pressure differentials are excessive. In these situations, power-assisted or power-operated doors should be used to provide an accessible entrance. In addition, if local fire codes require closing forces higher than 8-1/2 pounds, and the door is required for accessibility, a power-assisted or power-operated door will be required as per the criteria below.

Power-assisted doors neutralize the closing force created by the mechanical closer, allowing these doors to be opened with minimal force. After a preset period of time, the closer returns to its normal force. If there are windy conditions most of the time, however, the door should be totally power operated. In addition, if there is less than 12 inches of floor space adjacent to the handle on the pull side of the door, the door should be totally power operated.

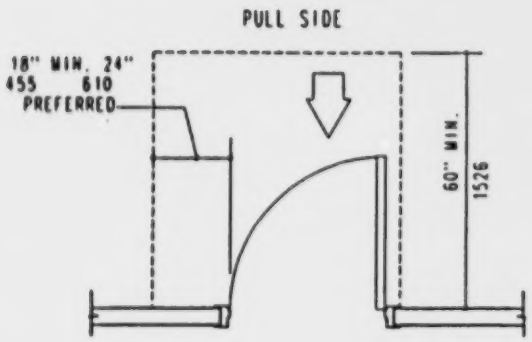
Power-operated doors provide complete automatic operation of the door, triggered either by a push button,

mat, or photoelectric eye. In situations where it is difficult to bring power to button operators, battery-powered, radio-controlled activators are available. Power operators can be added to existing side-hung doors or an entire new package can be purchased. The operators should be adjustable as to "opening time" and "time in open position." They can be used on either exterior or interior doors.

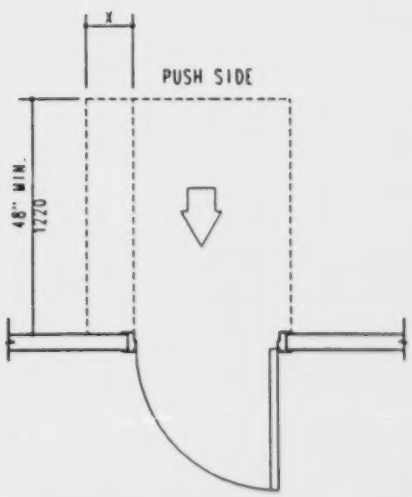
Many companies manufacture low-energy power door operators. These units, unlike the supermarket type of fast-opening doors, open slowly and will not knock someone over if the door should strike them. A protective rail should be used if traffic is likely to cross in front of the door. ANSI specifications, as well as other building codes, cover this type of installation.

Power operation can also be used on sliding doors. The advantage of using sliding doors is that when they are used for two-way traffic, the door does not swing into traffic coming from the other direction. However, sliding doors are usually more expensive than side-hung power-operated doors.

Figure 3-3. Maneuvering Clearances at Doors

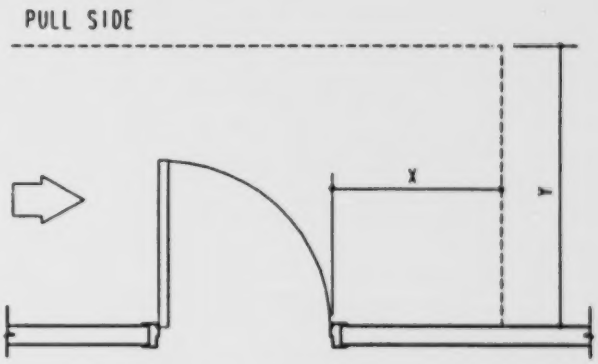


FRONT APPROACH - SWINGING DOOR



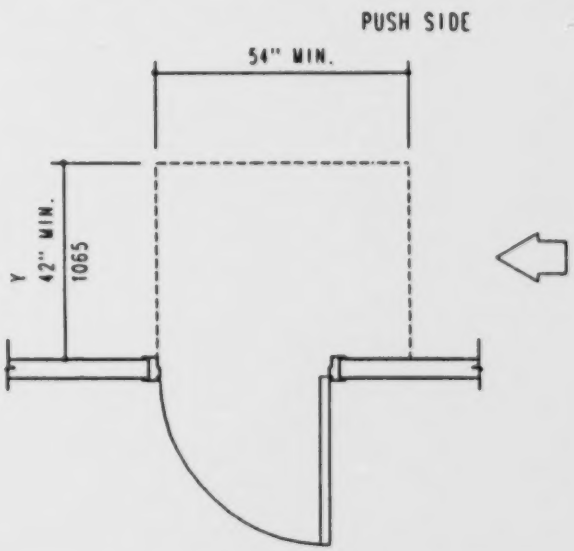
NOTE: X = 12" (305) IF THE DOOR HAS BOTH A CLOSER AND A LATCH.

FRONT APPROACH - SWINGING DOOR



NOTE: X = 36" (915 mm) MIN. IF Y = 60" (1525 mm)
X = 42" (1065 mm) MIN. IF Y = 54" (1370 mm).

HINGE SIDE APPROACH - SWINGING DOOR

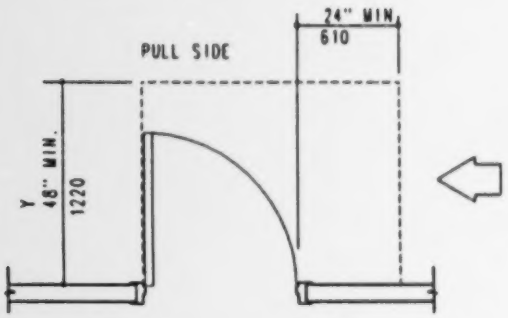


NOTE: Y = 48" (1220 mm) MIN. IF DOOR HAS BOTH A LATCH AND A CLOSER.

HINGE-SIDE APPROACH - SWINGING DOOR

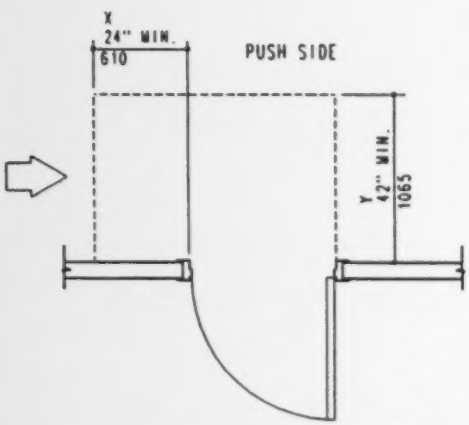
(continued on next page)

(continued from previous page)



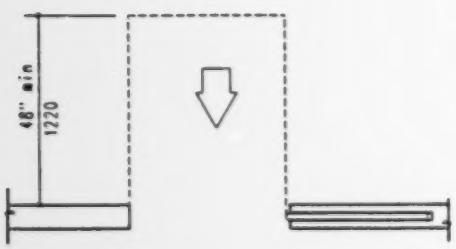
NOTE: Y = 54" (1370 mm) MIN. IF THE DOOR HAS A CLOSER.

LATCH-SIDE APPROACH - SWINGING DOOR



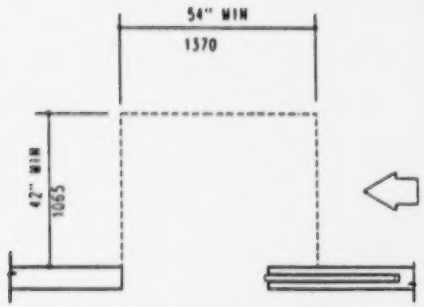
NOTE: Y = 48" (1220 mm) MIN. IF THE DOOR HAS A CLOSER.

LATCH-SIDE APPROACH - SWINGING DOOR



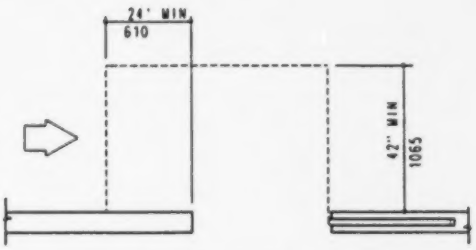
NOTE: ALL DOORS IN ALCOVES SHALL COMPLY WITH THE CLEARANCES FOR FRONT APPROACHES.

FRONT APPROACH - SLIDING AND FOLDING DOORS



NOTE: ALL DOORS IN ALCOVES SHALL COMPLY WITH THE CLEARANCES FOR FRONT APPROACHES.

SLIDE-SIDE APPROACH - SLIDING AND FOLDING DOORS



NOTE: ALL DOORS IN ALCOVES SHALL COMPLY WITH THE CLEARANCES FOR FRONT APPROACHES.

LATCH-SIDE APPROACH - SLIDING AND FOLDING DOORS

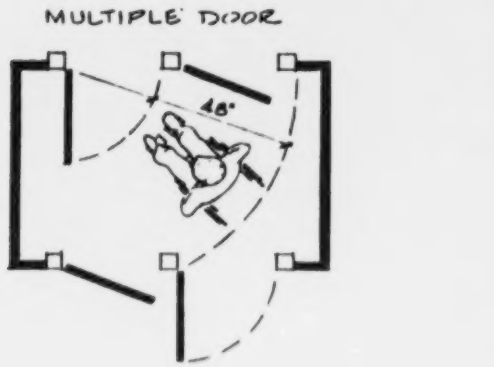
Revolving Doors, Gates, and Turnstiles

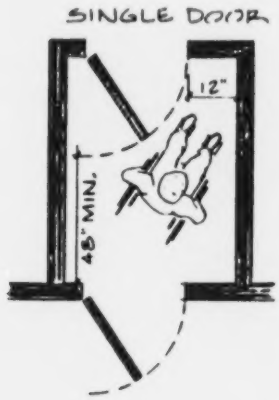
These types of entrance controls should not be the only means of entering or exiting from a facility, unless they meet the requirements set forth above for doors. Several revolving door manufacturers have created large power-operated units that can accommodate people using wheelchairs, but many building codes still require adjacent side-hung doors for emergency egress. If gates are used to control traffic into stadiums, field houses, and physical education facilities, these also need to be accessible, or an alternate adjacent door should be provided that is accessible.

Modifying Exterior Doors

When modifying exterior entrances, care should be taken not to violate life safety requirements by reducing the number of exit units required by local codes. Often in existing facilities, there are several doors that provide less than the 32-inch clear opening required for an accessible entrance. Making one of these doors

Figure 3-4. Minimum Requirements for Two Doors in Series


MULTIPLE DOOR
48"
NOTE: DOORS MUST SWING IN SAME DIRECTION. IF DOORS SWING AWAY FROM THE VESTIBULE, THE DEPTH OF VESTIBULE CAN BE DECREASED TO A MINIMUM OF 4'-6".



provide a 32-inch clear opening might reduce the total number of doors in the entrance by one, and thus create a violation of the code.

When a double-door unit is encountered, and neither door provides the necessary 32-inch clear opening, both doors can be power-operated if there is no center mullion.

If a door opening is just shy of meeting the 32-inch requirement (i.e., it is 30-1/2 inches or wider), a "throw-out" or "off-set hinge" may be installed to provide the extra opening space.

Doors Leading to Dangerous Areas

Tactile warnings should be placed on the door handle hardware of those doors leading to an area that could prove dangerous to a blind person, such as loading platforms, electrical closets, and boiler rooms. A textured surface can be applied to the door handle by knurling, or with an epoxy grit finish.

It is important to note that, although a fire escape might be considered a dangerous place for a blind person, emergency exit doors or any door used for emergency egress shall not be textured, as this might deter a blind person from exiting to safety.

Construction Specifications

Please note that the following specifications are not all-inclusive, but represent items that should be included where applicable when writing specifications for accessible doors.

Fire-rated and Emergency Exit Openings

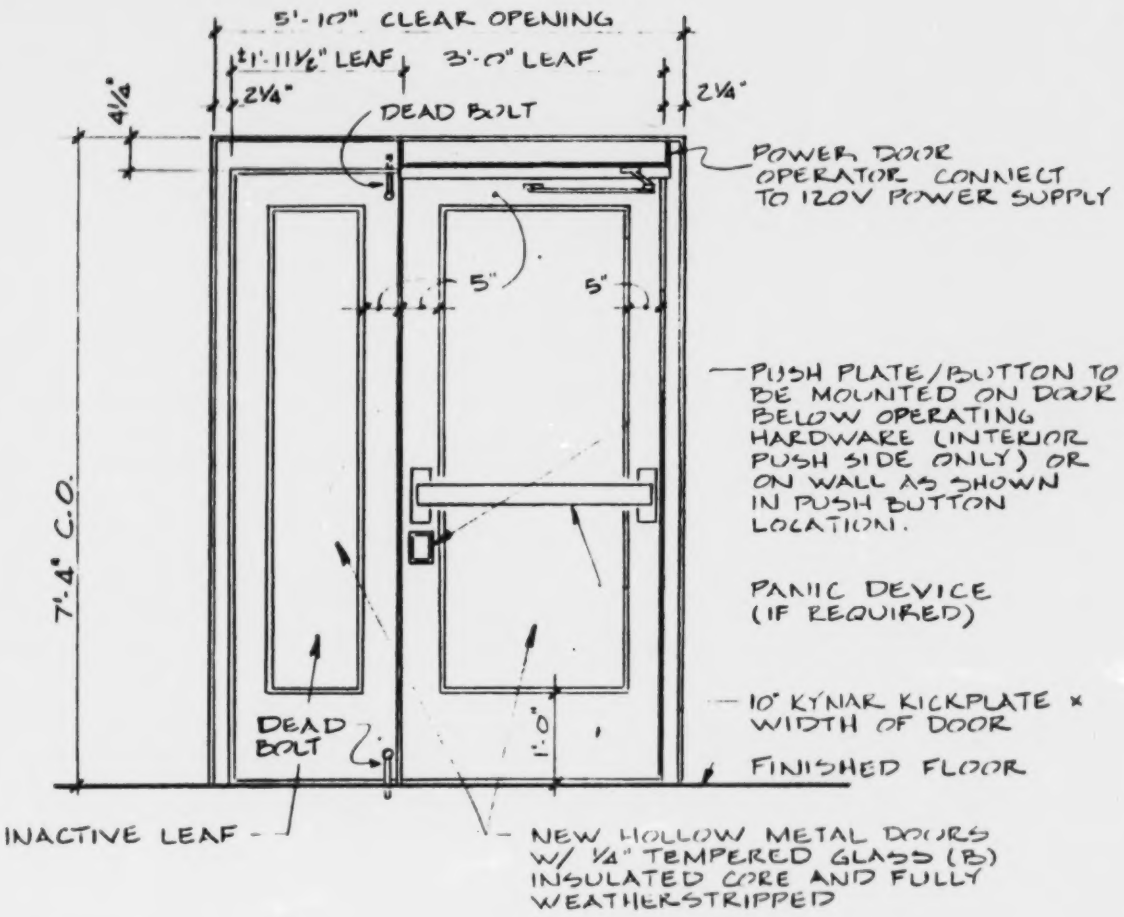
Door units must comply with the requirements for doors as emergency exits and must not interfere with fire ratings (if any), as certified by the manufacturer for the application shown.

Manual Door Closers

The spring power of each closer must be adjustable, Size II through Size VI. Regulating screws shall be tamper-proof and adjustable only with a hex wrench. Closers shall have separate adjustments for latch speed, general speed, and back-check. They shall have a back-check porting adapter valve to set cushioning of opening swing in advance of 90 degrees for any standard mounting. All closers and accessories, except special purpose types—whether applied hinge side, stop face, over door, or on bracket—shall be non-handed. Hydraulic fluid shall be of a type requiring no seasonal adjustment for temperatures ranging to -30°F. All closer cylinders, being non-sided, non-handed, and with the potential for application in all standard mountings, shall be interchangeable. All closers shall be from one manufacturer and carry a five-year warranty.

Note: By using a closer as described above, a facilities staff may stock closers and know that they will be able to use them for most applications on campus, without having to wait for orders to arrive. Although the "first cost" of an adjustable closer is greater, it will satisfy accessibility requirements under many conditions and can be field-adjusted to meet door size or local climatic or building pressure conditions.

Figure 3-5. Door Elevation


5'-10" CLEAR OPENING
2'-11½" LEAF
3'-0" LEAF
2¼"
2¼"
4½"
DEAD BOLT
POWER DOOR OPERATOR CONNECT TO 120V POWER SUPPLY
5"
5"
PUSH PLATE/BUTTON TO BE MOUNTED ON DOOR BELOW OPERATING HARDWARE (INTERIOR PUSH SIDE ONLY) OR ON WALL AS SHOWN IN PUSH BUTTON LOCATION.
PANIC DEVICE (IF REQUIRED)
7'-4" C.O.
10" KYNAR KICKPLATE x WIDTH OF DOOR
DEAD BOLT
FINISHED FLOOR
INACTIVE LEAF
NEW HOLLOW METAL DOORS W/ ¼" TEMPERED GLASS (B) INSULATED CORE AND FULLY WEATHERSTRIPPED

FOR EXISTING CLEAR OPENING OF 5'-10" OR LESS

Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

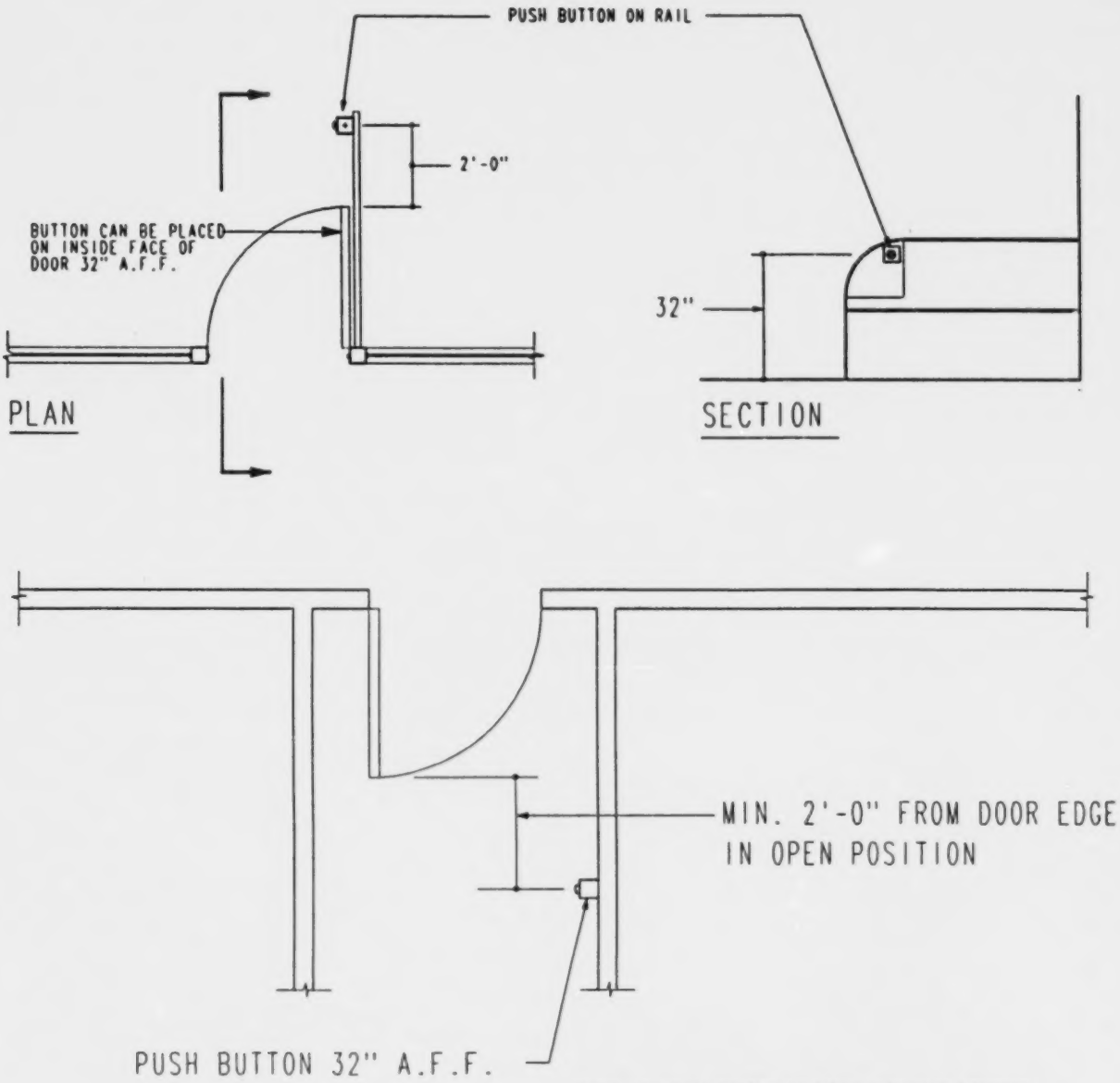
Power Operators

Function. Automatic door operators shall be self-contained electric and/or hydraulic "slow-mode" operators designed for use by disabled people without need for safety mats or rails.

Doors shall comply with the latest revision of ANSI A156.10, open automatically by power, and close by spring or electric power. Operators shall also function as ordinary door closers at any time during any mode of power operation, or when not under power.

Automatic opening speed shall be adjustable to open the door at a uniform speed from closed to 90 degrees open in 3 to 9 seconds, adjustment time to be recommended by institution.

Figure 3-6. Power-Operated Doors Push Button Location



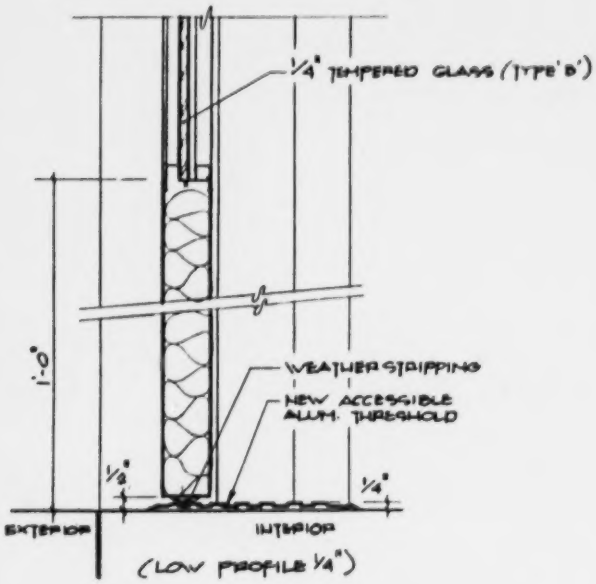
Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Doors shall be held open for an adjustable period of time from 0 to 30 seconds, adjustment time to be recommended by institution.

Doors shall close by spring power with separate hydraulic controls for closing and latching speeds. Closing speed shall be adjustable to close the door from 90 degrees open to the latch position in 1-1/2 to 5 seconds. Latching speed shall be 1-1/2 seconds to gently close the door against its stop, and power shall be sufficient to latch or hold the door in a closed position.

Operation shall be by remote push-plate switches. Depressing the switch plate shall activate the open/close cycle. Depressing the switch plate while the door is in the hold-open position or is closing will restart the

Figure 3-7. Accessible Threshold Detail



Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

open/close cycle, causing the door to remain open for the full hold-open period.

Resistance exceeding 15 pounds at the latch side of the door shall cause the operator to immediately reverse its cycle.

Door Operator Installation. Disengage existing door operating mechanism, springs, and back-check unit. Replace arms and pivots if necessary. Disengage existing floor closers and checks and/or replace with new pivots as necessary. All holes where items were removed shall be patched and painted to match existing.

Size of Units. Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit, depending upon size of door, exposure to weather, and anticipated frequency of use.

Electric Door Operators, Sliding. Use manufacturer's standard electric drive unit, self-contained with connections for power and control wiring, power opening, and either power or spring closing with safety release clutch for obstructed closing, and with checking for both opening and closing cycles. The operator shall allow the door to be operated manually in power-on or power-off conditions.

Breakaway Device. All sliding door leaves shall be equipped with a panic breakaway device concealed within the top of the door. The sliding door leaf and the swing-away side light shall have a concealed shock absorber control arm mounted in the top rail to control the swing arc when the door or side light is in panic mode.

Door Operator Controls and Accessories

Push Plate. Provide press-type wall plate switches (two per door) with adjustable time delay (hold open).

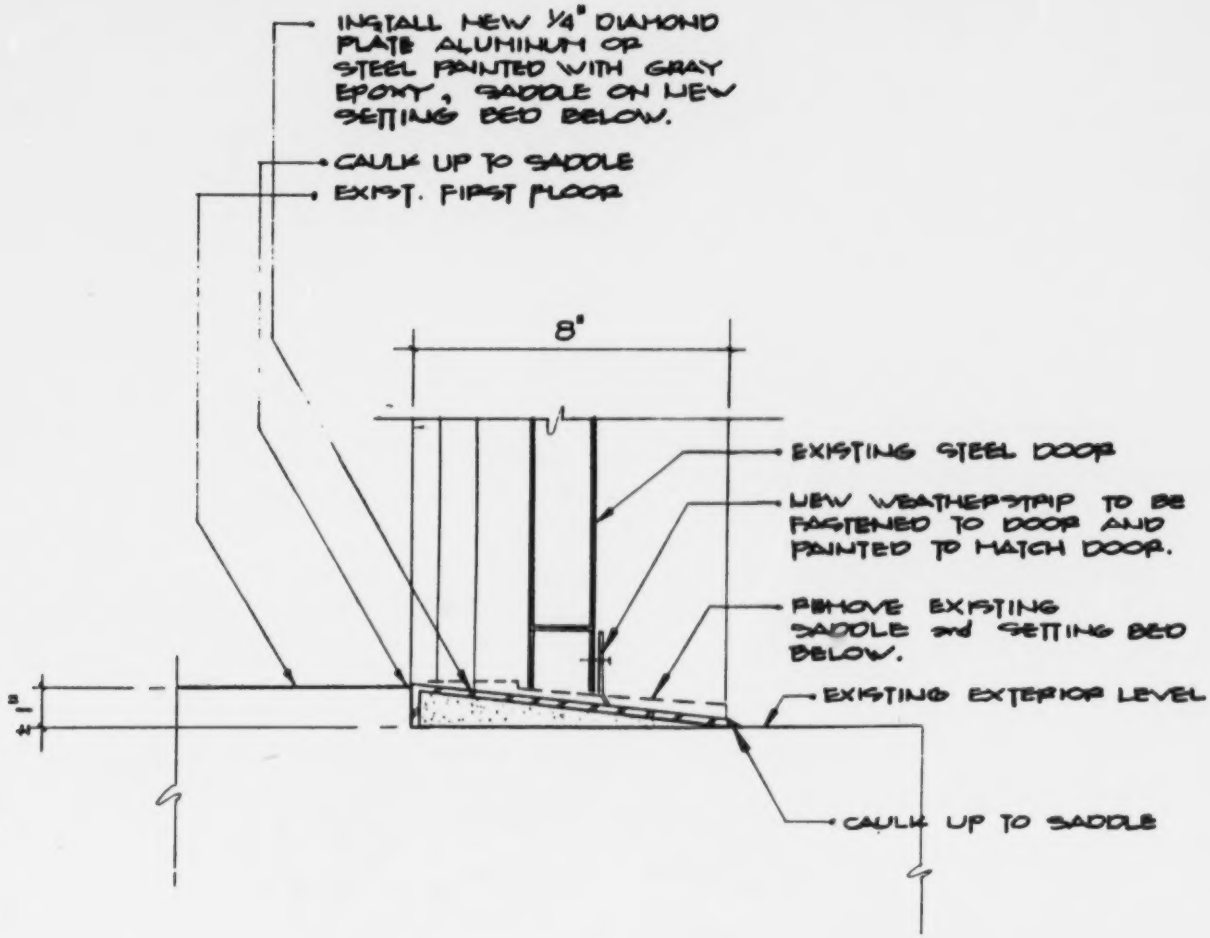
Operator. When door is locked or otherwise prevented from opening, the operator shall have an interrupt or other device that will disrupt operation and not harm the operator. Key switching at the door location should also be provided to shut off power when the building is locked.

Electric Strike. Provide an electric strike to permit opening and closing a door automatically that is secured with a latch or bolt, with separate solid-state interface control. This specification should be used if the door is to be automated and security control is desired.

Thresholds

Size/Profile. As indicated or, if not indicated, use manufacturer's accessible standard for condition of exposure.

Figure 3-8. Renovated Door Saddle Detail


INSTALL NEW ¼" DIAMOND PLATE ALUMINUM OR STEEL PAINTED WITH GRAY EPOXY, SADDLE ON NEW SETTING BED BELOW.
CAULK UP TO SADDLE
EXIST. FIRST FLOOR
8"
EXISTING STEEL DOOR
NEW WEATHERSTRIP TO BE FASTENED TO DOOR AND PAINTED TO MATCH DOOR.
REMOVE EXISTING SADDLE and SETTING BED BELOW.
EXISTING EXTERIOR LEVEL
CAULK UP TO SADDLE

Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Chapter 4
Interior Circulation

It is necessary to provide an accessible path of travel inside the building to any and all accessible spaces. This does not mean, however, that every space in the building has to be accessible. The spaces that are required to be accessible can be found under Section 4 of ADAAG, Accessible Elements and Spaces. Once the building entrance has been established, you should ascertain which floors of the building have to be accessible, and then determine if these floors can be reached by people with disabilities.

Within those areas required for program accessibility, floors, hallways, and passageways should be barrier-free without abrupt changes of level. Accessible rooms and spaces should not be at a different level from hallways unless they are properly ramped or wheelchair lifts are provided.

Floors above and below the entrance level must be connected by ramps, wheelchair lifts, or elevators to be considered accessible. If these floors are already connected by ramps or elevators, the elevators and ramps have to meet the minimum requirements listed under the appropriate criteria section.

If there are two levels in a building, two different functions take place at each level, and each level has its own accessible entrance, then it should not be necessary to have accessible interior vertical circulation. For example, an administration/classroom building does not need interconnecting interior circulation if both floors are accessible by external entrances, but a physical education building with locker rooms on one floor and gym facilities on the other would need internal vertical connections that are accessible.

Protruding Objects in the Path of Travel

For blind people who use the long cane technique, a danger zone is caused by wall-mounted objects that project into the path of travel. An object such as a telephone booth or drinking fountain cannot be detected by the long cane if the protruding areas of the object fall entirely within an area 27 inches to 6 feet, 8 inches above the floor. If a wall-mounted object falls within this danger zone, it can protrude only 4 inches from the wall surface. All hallways, corridors, and aisles should be examined for objects that fall into this zone.

If an object extends to within 27 inches of the floor, the long cane technique will detect it. Objects projecting into this lower area can protrude any distance from the wall without becoming a hazard.

Objects such as signs shall not extend down from the ceiling into the upper range (below 6 feet, 8 inches from the floor) of this danger zone.

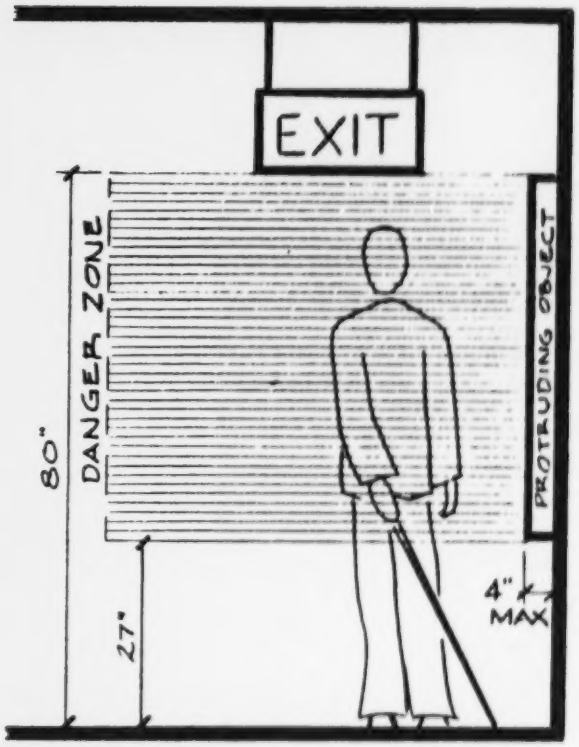
Stairs

It was mentioned earlier in this chapter that if an elevator is provided, stairs do not have to meet the handrail and nosing requirements set forth. But because many people with disabilities will choose to use the stairs, their needs should be met.

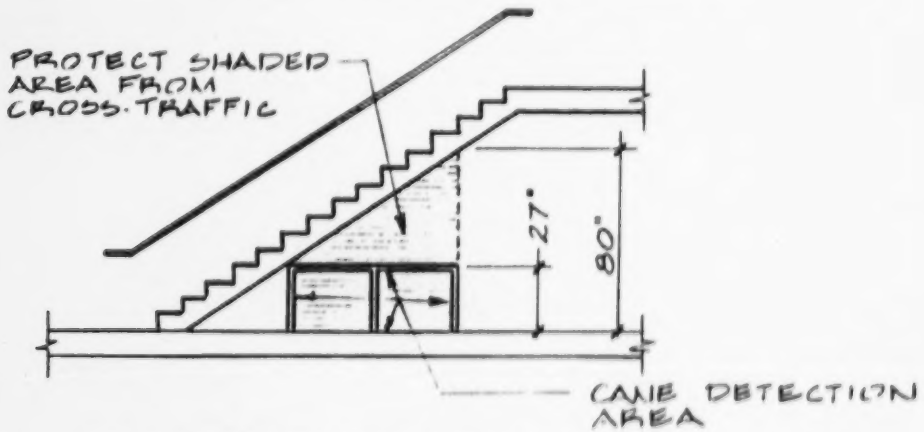
All stairs, except those in an enclosed stair tower, should have a tactile warning at the top of the stair run. This could be a change of texture in contrast with that of the path of travel leading to the stair. If this path is carpeted, for example, the texture can be changed by removing an area of carpet a distance of 36 inches from the top step and replacing it with tile or some other hard surface. A color change as well as a texture change will make the tactile warning more apparent to people who have low vision.

Another common occurrence is a stair that is open below and presents an overhead hazard. If the vertical clearance of an area adjoining an accessible route is reduced to less than 6 feet, 8 inches, a barrier to warn visually impaired persons shall be provided.

Figure 4-1. Protruding Objects in the Path of Travel



REMOVE PROTRUDING OBJECTS IN HALLWAYS



OVERHEAD HAZARDS

Edges of Dangerous Low Areas

The edges of areas such as reflecting pools shall also have a tactile clue or warning to prevent a blind person from stumbling into the pool. This tactile clue could be a curb, rail, or texture change.

Elevators

Elevators are not required by ADA in an existing building if the building has less than three stories or less than 3,000 square feet per story, except for shopping centers and offices of health-care providers. Many state and local codes, however, do provide for upper-floor accessibility by elevator.

This elevator exemption does not obviate or limit in any way the obligation to comply with the other accessibility requirements established in these guidelines. For example, alterations to floors above or below the ground floor must be accessible regardless of whether or not the altered facility has an elevator. If a facility subject to the elevator exemption nonetheless has a full passenger elevator, that elevator shall meet, to the maximum extent feasible, the accessibility requirements of these guidelines.

In existing buildings, ADA requirements will allow consideration of excessive costs in making the building totally accessible. But it would appear that some sort of mechanical device will still be required for an existing building that needs to be made accessible. For example, it would probably be more expensive to move the programs on the second and third floors of a building to the first floor instead of providing an elevator, especially if those programs use specialized laboratories. Ramps or wheelchair lifts may be used if no other alternative is feasible.

In new construction, or when installing a new elevator in an existing facility, the elevator must meet, at a minimum the requirements set forth in ADAAG, UFAS, ANSI 117.1, ANSI/ASME 17.1, and any other more stringent local codes. Under certain circumstances, residential elevators or fully enclosed wheelchair lifts may be used, if the authority having jurisdiction over the installation deems it appropriate and will approve their installation.

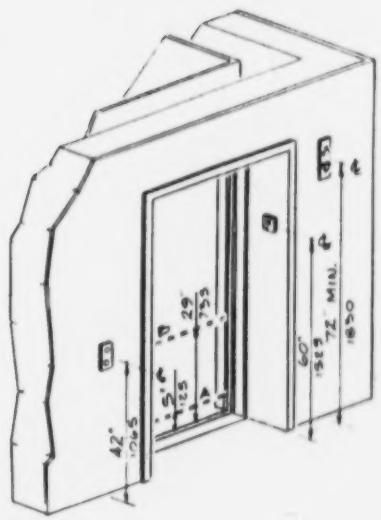
The elevator shall meet the following criteria (more detailed specifications are provided at the end of this chapter):

- ☑ It shall be an automatic passenger elevator. Freight elevators shall not be considered. Combination freight/passenger elevators will be acceptable as long as they serve both the public and employees.
- ☑ It shall be accessible to the entrance of the building.
- ☑ The elevator door shall provide a 36-inch minimum clear opening.
- ☑ The elevator shall provide minimum dimensions as shown in Figure 4-5. The minimum car plan dimensions may be reduced by the minimum amount necessary, but in no case shall the inside car area be smaller than 48 inches by 48 inches. Equivalent facilitation may be provided with an elevator car of different dimensions when usability can be demonstrated, and when all other elements required to be accessible comply with the applicable provisions.
- ☑ The space in front of the elevator shall be at least 60 inches wide by 48 inches deep. (Some local codes might require greater depths.)
- ☑ The elevator must level within ± 1/2 inch of the landing. The clearance between the car platform sill and the edge of the hoistway landing shall be no greater than 1-1/4 inches.
- ☑ The height of the car controls should not exceed 48 inches AFF, with the emergency stop control at the bottom. In existing elevators, if the cost to relocate the buttons is substantial, ADAAG will allow the highest button to be placed at 54 inches AFF. Car controls shall be set up as indicated in Figure 4-3.
- ☑ The floor surface should be either firmly attached carpet with a low pile or a hard, slip resistant, firm floor.
- ☑ The car door must have a photoelectric eye or other means to stop it from closing while people enter or exit. The device shall be activated by sensing an obstruction passing through the door between 5 inches and 29 inches AFF. Once activated, the doors must remain open for a minimum of 20 seconds. Automatic side-hinged, rather than automatic sliding doors must meet all criteria for doors. If there is a retractable gate, it cannot require more than 5 pounds of opening pressure. If these criteria cannot be met, the institution has the option of providing attendant operation or installing a new elevator car.
- ☑ Hall call buttons, a minimum of 3/4 inch in diameter, shall be centered at 42 inches AFF. Each button

shall have visual signals to indicate when each call is registered and when each call is answered. The "up" button shall be on top.

- ☑ Raised characters on hoistway and hall lanterns shall be provided.
- ☑ Minimum illumination levels shall be 5 footcandles in the car and at the landing.
- ☑ A car position indicator shall be provided. An audible as well as visual indicator shall annunciate when the car passes or stops at a floor. A special button may be provided that activates the audible signal within the given elevator for the desired trip, rather than maintaining it in constant operation.
- ☑ An emergency communication system complying with the latest requirements of ANSI/ASME 17.1 shall be provided in accordance with Section 4.10.14 of ADAAG. The needs of hearing-impaired people should be taken into consideration when providing emergency communication. A visual system, with a means to acknowledge receipt of an emergency call should be considered. The voice system should be a device that requires no handset so that it can be used easily by people who have difficulty reaching and grasping.

Figure 4-2. Hoistway and Elevator Entrances



NOTE: THE AUTOMATIC DOOR REOPENING DEVICE IS ACTIVATED IF AN OBJECT PASSES THROUGH EITHER LINE A OR LINE B. LINE A AND LINE B REPRESENT THE VERTICAL LOCATIONS OF THE DOOR REOPENING DEVICE NOT REQUIRING CONTACT

As a general rule of thumb, the 1,500-pound elevator (51 inches by 54 inches) will provide minimum accessibility for an existing facility. ADAAG requires that elevators be 68 inches wide if the door is to one side, and 6 feet, 8 inches wide if the door is centered.

Wheelchair or Platform Lifts

These devices are designed to transport a person in a wheelchair, and are not to be confused with an inclined stairway lift in which a person transfers from a wheelchair to a chair-like device that travels up the run of a stair. This latter type of lift is not acceptable, because many people cannot transfer and would not have the wheelchair available at the other end of the stair.

ADAAG allows platform or wheelchair lifts in new construction in a performing area in an assembly occupancy; to comply with viewing position line-of-sight requirements; to provide access to incidental occupiable spaces and rooms; and to provide access where existing site constraints make use of a ramp or an elevator infeasible. In alterations, the lifts are not limited to the above restrictions, but they must meet local codes and ANSI/ASME 17.1, Parts XX and XXI.

It is essential that the lift be safe and reliable. There are two types currently available: vertical and inclined.

Vertical Lifts

This type of lift operates like an elevator. Since many of these "lift packages" come without safety features, you should verify that the lift provides the following features:

- ☑ Safety gates with an interlock that prevent anyone from entering the lift platform unless it is at the same level as the gate.
- ☑ Cutoff controls to stop the lift if it contacts an obstruction.
- ☑ Manual mechanical override, so that a person using a wheelchair can be rescued if there is a power or equipment failure.
- ☑ Emergency button that will activate an audible/visual signal or intercom connected to campus security. This is especially important if the lift is in an enclosed shaft and out of sight.

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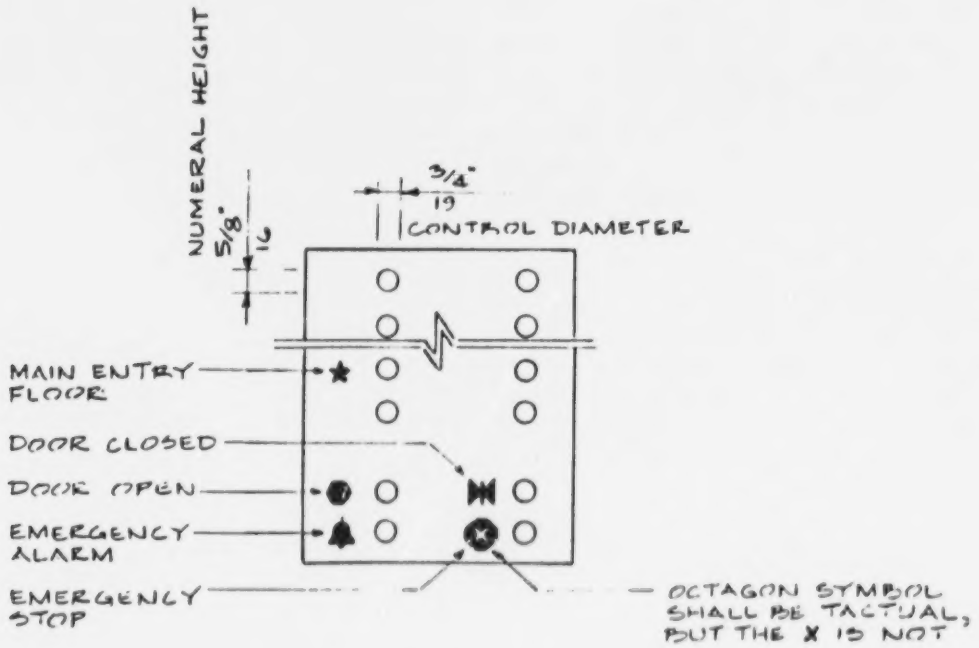
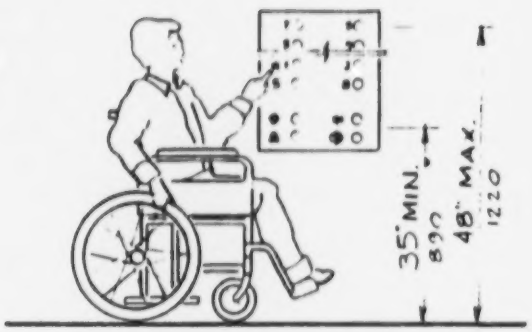
Figure 4-3. Accessible Elevator Controls



PANEL DETAIL



CONTROL HEIGHT

Figure 4-4. Graph of Timing Equation

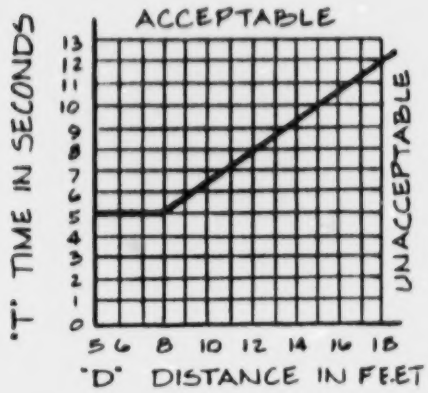
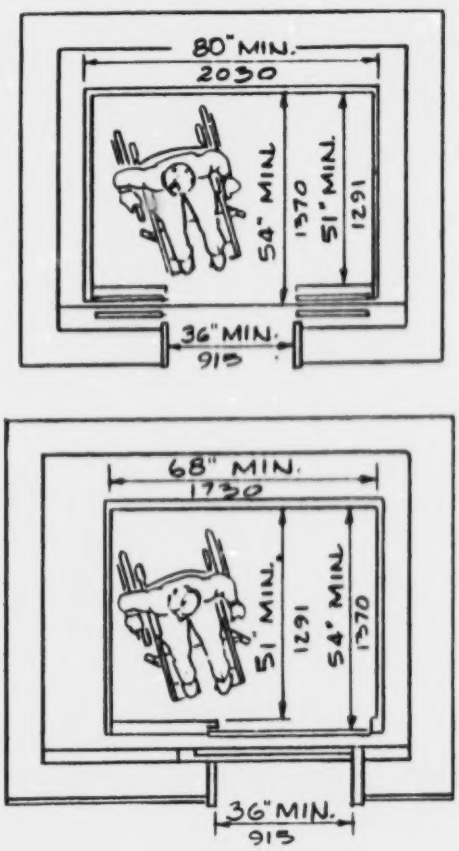


Figure 4-5. Minimum Dimensions of Elevator Car



Inclined Lifts

This second type of lift carries the wheelchair up a flight of stairs. There are several companies that make lifts that not only travel a straight run, but can also negotiate landings and other changes of direction.

The most important consideration relating to this type of lift is that if the stairway is needed for fire exiting, it must be wide enough to accommodate both the lift and nondisabled people using the stairs. The decreased width size of the stair has to comply with applicable local codes. Many code officials will not allow this type of lift in a required exit, even if it is wide enough. Therefore, it is important to review this option with the local authority having jurisdiction before considering its use.

For an inclined lift, the above requirements for a vertical lift shall be met, as well as the following requirements:

- ☑ If the lift is to be used independently by disabled people, it shall be able to be summoned from either station without the platform being folded in an upright position. Some lifts automatically fold the platform before travel, if summoned from the opposite landing. This would be the safer alternative, if the stair is also being used by nondisabled people.
- ☑ A guardrail should be provided to divide the lift from nondisabled people using the stair at the same time.

Construction Specifications

These specifications are not all-inclusive but represent those areas that should be included for barrier-free elevator access.

Door Protective and Reopening Device. Elevator doors shall open and close automatically. They shall be provided with a reopening device that will stop and reopen a car door and hoistway door automatically if the door becomes obstructed by an object or a person. The device shall be capable of completing these operations without requiring contact for an obstruction passing through the opening at heights of 5 inches and 29 inches AFF. Door reopening devices shall remain effective for at least 20 seconds. After such an interval, doors may close in accordance with the requirements in ANSI/ASME 17.1.

Figure 4-6. Vertical Wheelchair Lift

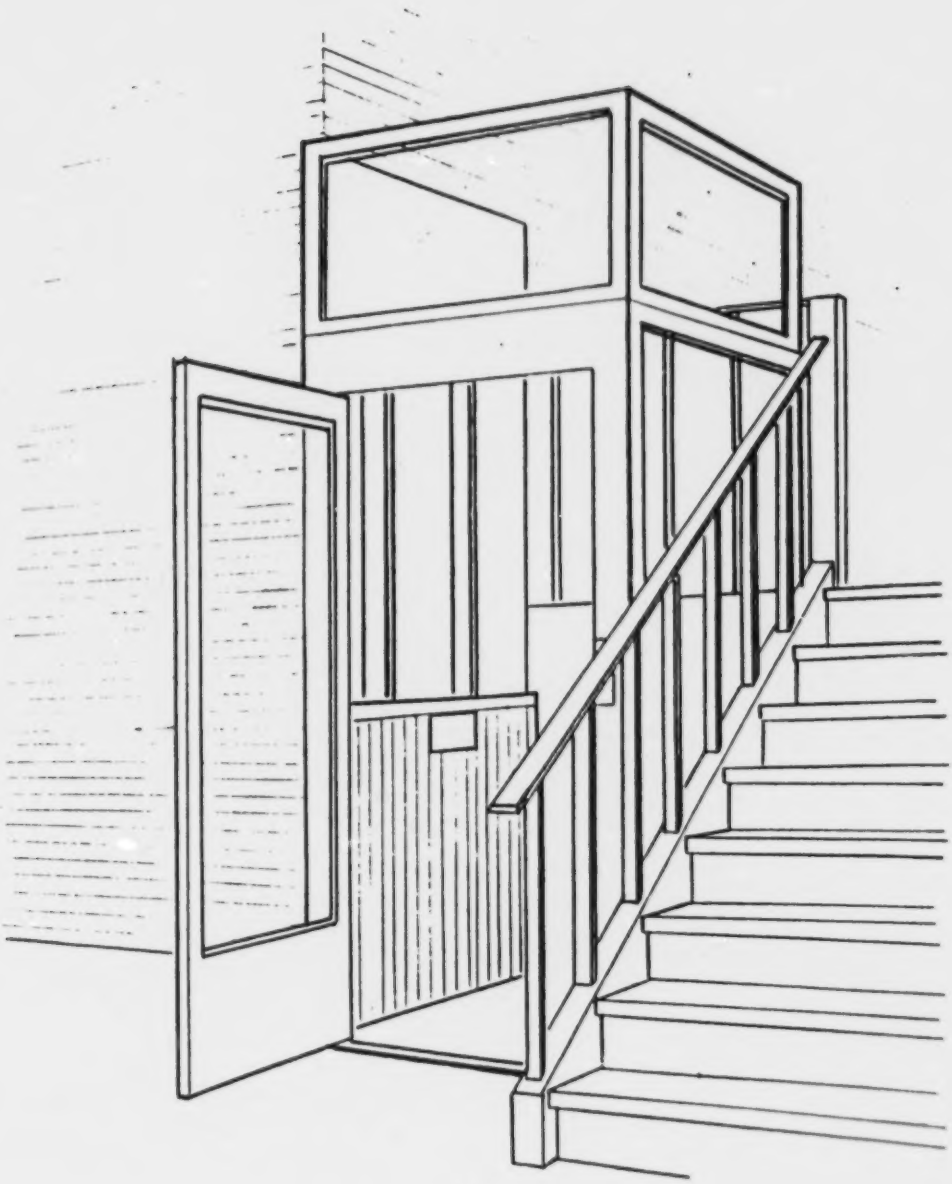
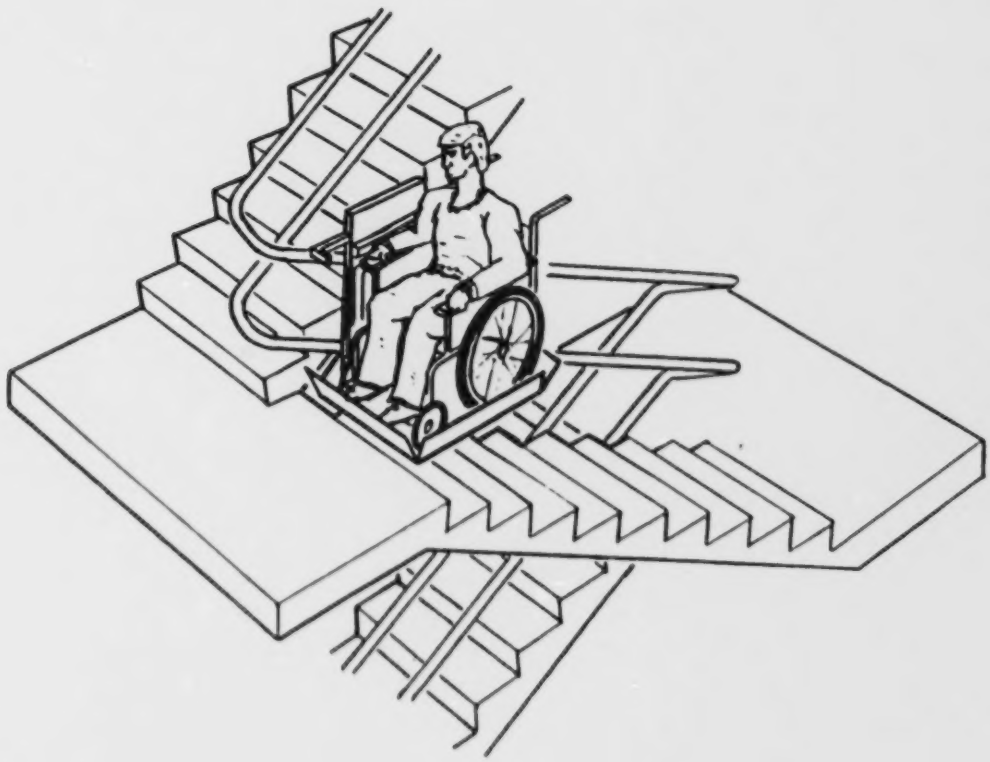


Figure 4-7. Inclined Wheelchair Lift



Height. All floor buttons shall be no higher than 54 inches AFF. Emergency controls, including the emergency alarm and emergency stop, shall be grouped at the bottom of the panel and shall have their center lines no less than 35 inches AFF.

Locations. Controls shall be located on a front wall if cars have center-opening doors, and at the side wall or at the front wall next to the door if cars have side-opening doors.

Door and Signal Timing for Hall Calls. The minimum acceptable time from notification that a car is answering a call until the doors of that car start to close shall be calculated from the following equation:

$$T = D \div 1.5$$

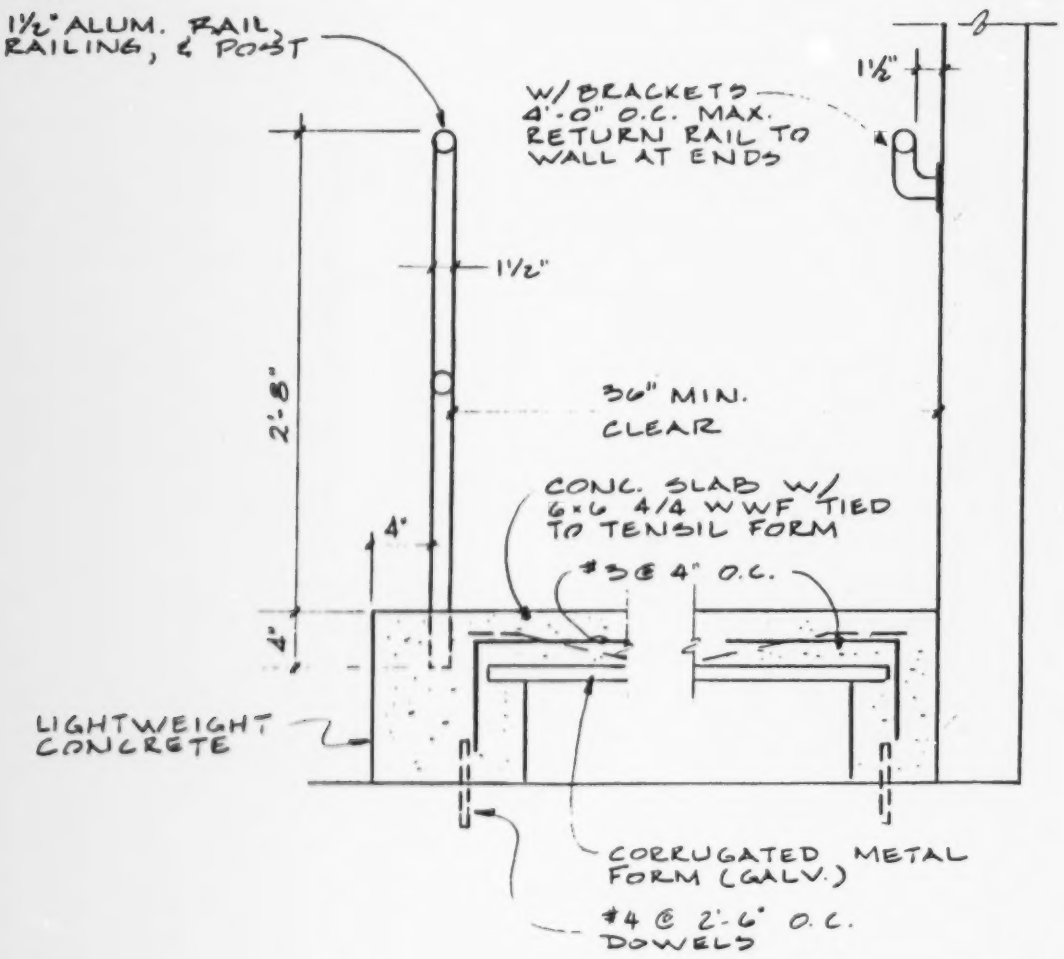
where T = total time in seconds, and D = distance (in feet) from a point in the center of the lobby or corridor 60 inches directly in front of the farthest call button to the center line of the hoistway door. For cars with in-car lanterns, T begins when the lantern is visible from the vicinity of hall call buttons and an audible signal is sounded. The minimum time for elevator doors to remain fully open shall be 3 seconds.

Inside of Car. The inside of the car shall allow for turning of the wheelchair. The minimum clear distance between the walls or between the wall and the door, excluding return panels, shall be at least 68 inches by 54 inches. The minimum distance from the wall to the return panel shall be at least 51 inches.

Hall Call Buttons. The center line of the hall call buttons shall be centered 44 inches above the floor. The button designating "up" shall be located on the top.

Control Buttons. These buttons, exclusive of border, shall be a minimum of 3/4 inch in size, raised, flush, or recessed. If recessed, the button shall not be recessed

Figure 4-8. Interior Ramp Section—Concrete



Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

more than 3/8 inch. A visual indication shall be provided to show each call registered and shall be extinguished when the call is answered. All control buttons shall be designated by braille and by raised standard alphabet characters and standard symbols.

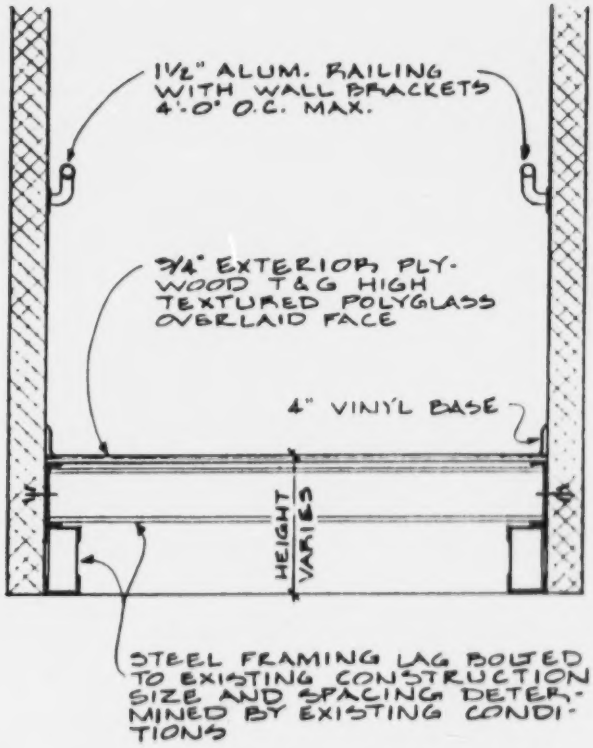
Hall Lantern. At each hoistway entrance, a visual and audible signal shall be provided to indicate which car is answering the call and its direction of travel.

Note: Some systems are set up so that the car will stop at the call floor unless it has other preinstructed travel orders. In this case, no direction light will be necessary, but an audible signal should be provided. The visual signal for each direction shall be a minimum of 2-1/2 inches in size and visible from the area of the call button.

The audible signal shall sound once for "up" and twice for "down."

The center line of the fixture shall be located a minimum of 6 feet above the floor so that it may be seen by a person seated in a wheelchair. In-car lanterns may be used if they meet the above criteria.

Figure 4-9. Interior Ramp Section—Steel Studs With Non-skid Wood Deck


1½" ALUM. RAILING WITH WALL BRACKETS 4'-0" O.C. MAX.
¾" EXTERIOR PLY-WOOD T&G HIGH TEXTURED POLYGLASS OVERLAID FACE
4" VINYL BASE
HEIGHT VARIES
STEEL FRAMING LAG BOLTED TO EXISTING CONSTRUCTION SIZE AND SPACING DETERMINED BY EXISTING CONDITIONS

Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Door Jamb Markings. At each hoistway entrance, on both sides of the jamb, a floor designation shall be provided at a height of 60 inches AFF. These designations shall be tactile (raised a minimum of 0.03 inches) and in braille, in high contrast with the jamb wall, at least 2 inches high, and visible from within the car and from the elevator lobby. Permanently applied plates are acceptable.

Car Position Indicator and Signal. A car position indicator shall be located above the car operating panel or over the door opening of each car. This indicator shows the position of the car in the hoistway by illuminating the number of the landing where the car is stopped or passing at the time. This may be an LED (light-emitting diode) display. The indicator numbers shall be in high contrast to the background and shall be a minimum of 1/2 inch in height.

Handrails. Although not required by ANSI A117.1, handrails assist many people with disabilities. If handrails are desired, they should be provided on at least two sides of the car (preferably on one side and at the rear of the car). They shall be smooth and the inside surface shall be 1-1/2 inches from the car wall. They shall be mounted at 32 to 33 inches above the car floor. (This will not interfere with any controls, since the lowest control is 35 inches above the floor.)

Audible Floor Passing Signals. An audible signal can be provided to indicate that the car is passing a floor. This signal can be subject to a special button in the car operating panel that, when pushed, would indicate to a blind passenger that the car was either stopping at or passing a floor served by the elevator. This special button will restrict the signal to sounding for a trip in one direction when the button was activated.

Elevator Car Button. The highest button inside the car should be 54 inches AFF and the lowest button 35 inches AFF. The emergency group shall be located on the lowest part of the panel. Visual indication should show each call registered and be extinguished when the call is answered. Markings should be adjacent and to the left of the control on a contrasting color background. Letters or numbers shall be a minimum of 1/2 inch high if raised, 0.03 inches if recessed. The panel shall be laid out as shown in Figure 4-3.

Chapter 5

Restrooms and Bathing Facilities

ADAAG requires in new construction that every public and common use restroom and bathing facility be accessible (at least one of each fixture provided shall be accessible). The only exception is that toilet rooms provided for the use of occupants of specific spaces (i.e., a private toilet room for the occupant of a private office) need only be adaptable.

In alterations, if it is infeasible to modify the existing restroom, you may instead install at least one unisex toilet/bathroom per floor, located in the same area as existing toilet facilities. Each unisex toilet room shall contain one water closet and one lavatory, with a door having an accessible privacy latch. You may use either alternate stall described later in this chapter in lieu of the standard stall.

- ☑ One male and one female restroom shall be provided on the same level as the accessible building entrance, or, if there are no restrooms on that level, on the next closest accessible level that has restrooms. If a building currently does not contain any restrooms at all, it is not necessary to provide them solely for disabled people.
- ☑ For a restroom to meet accessible design criteria, it must be on an accessible floor and have an accessible entrance as well as meeting the basic criteria listed below.

If an existing male restroom has a stall that meets the minimum criteria, it is not necessary to modify a urinal in that restroom.

It should not be necessary to modify seat heights that fall within the range of 17 to 19 inches above the floor.

In existing large buildings where a disabled person might have to travel an inordinately long distance on one floor, and if there are several male and female restrooms on each floor, then consideration should be given to making additional restrooms accessible.

In buildings over five stories high, a restroom for each sex should be provided every fifth story. This is a general rule, but it should also reflect the needs of the institution and the specific building. This rule of thumb is not meant to reflect the time that a disabled person needs to get to a restroom, but rather the number of accessible facilities needed as a minimum in a modified facility.

A unisex restroom is also acceptable if it meets the appropriate criteria, and:

- ☑ Is acceptable by local or state code.
- ☑ Is usable by everyone and is not set aside for disabled people.

Note: The 60-inch radius turning space can be reduced above floor level as shown in Figure 5-1. This will allow placement of lavatories and other restroom accessories in this area without violating the turning requirement.

Figure 5-1. Wheelchair Turning Clearances

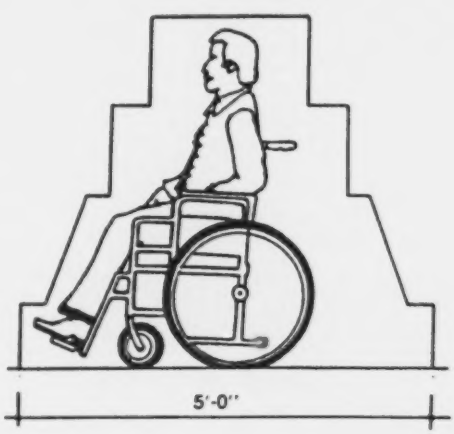
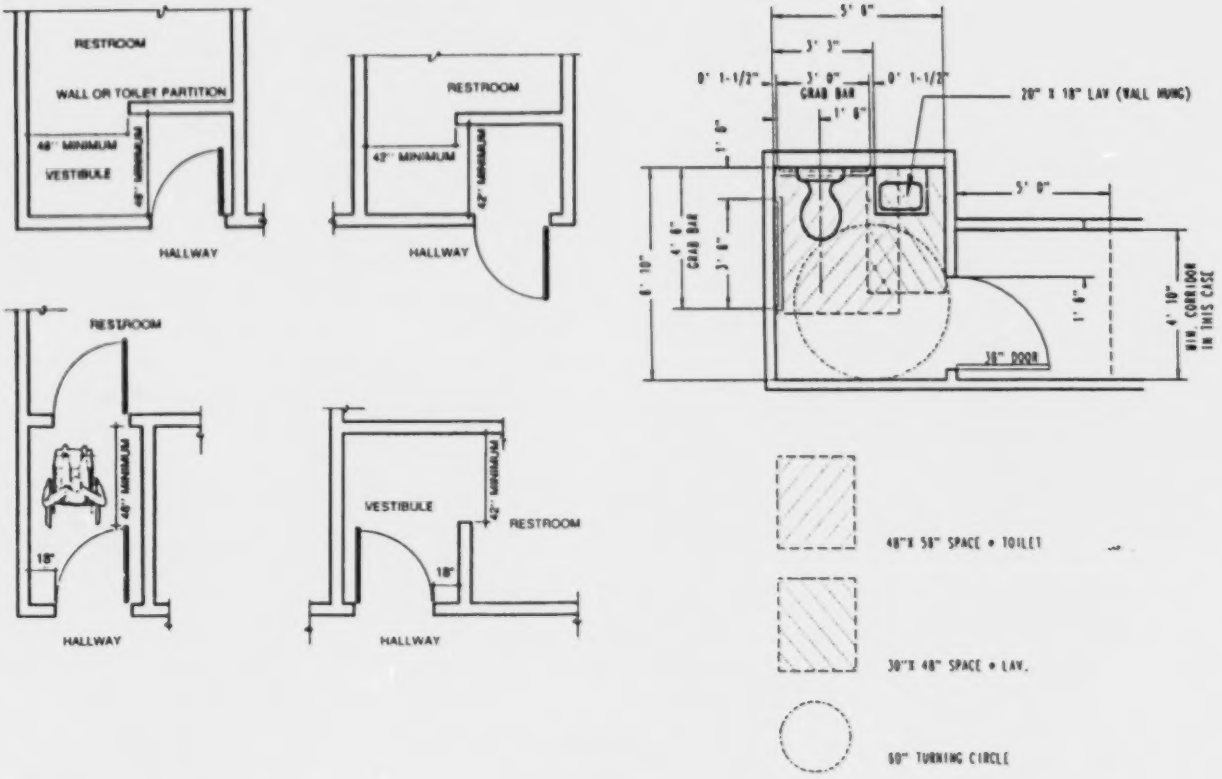
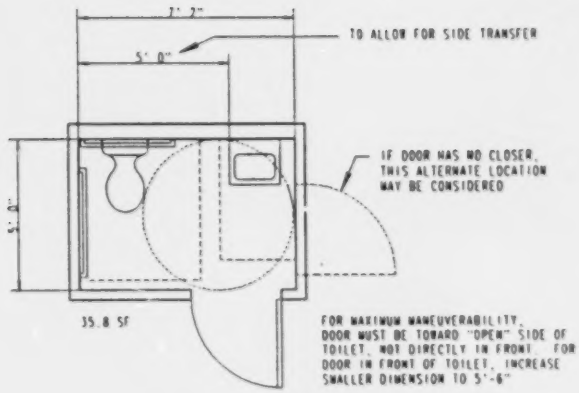


Figure 5-2. Restroom Floor Layouts




7' 2"
TO ALLOW FOR SIDE TRANSFER
5' 0"
IF DOOR HAS NO CLOSER, THIS ALTERNATE LOCATION MAY BE CONSIDERED
5' 0"
35.8 SF
FOR MAXIMUM MANEUVERABILITY, DOOR MUST BE TOWARD "OPEN" SIDE OF TOILET, NOT DIRECTLY IN FRONT. FOR DOOR IN FRONT OF TOILET, INCREASE SMALLER DIMENSION TO 5'-6"

MINIMUM 2-FIXTURE TOILET ROOM
FOR SIDE TRANSFER

(continued on next page)

Entranceway and Restroom Floor Layout

- ☑ The restroom entrance door must have at least a 32-inch clear opening (see Chapter 3, Doors).
- ☑ The internal passageway vestibule (if required) must allow access.
- ☑ There should be a place in the restroom where a clear floor area exists for a 60-inch turning radius.

With contemporary HVAC systems, many public restrooms are being designed without doors at their entrances. The minimum configurations shown in Figure 5-2 (without main entrance doors) can provide the privacy required and at the same time allow easier access for disabled people.

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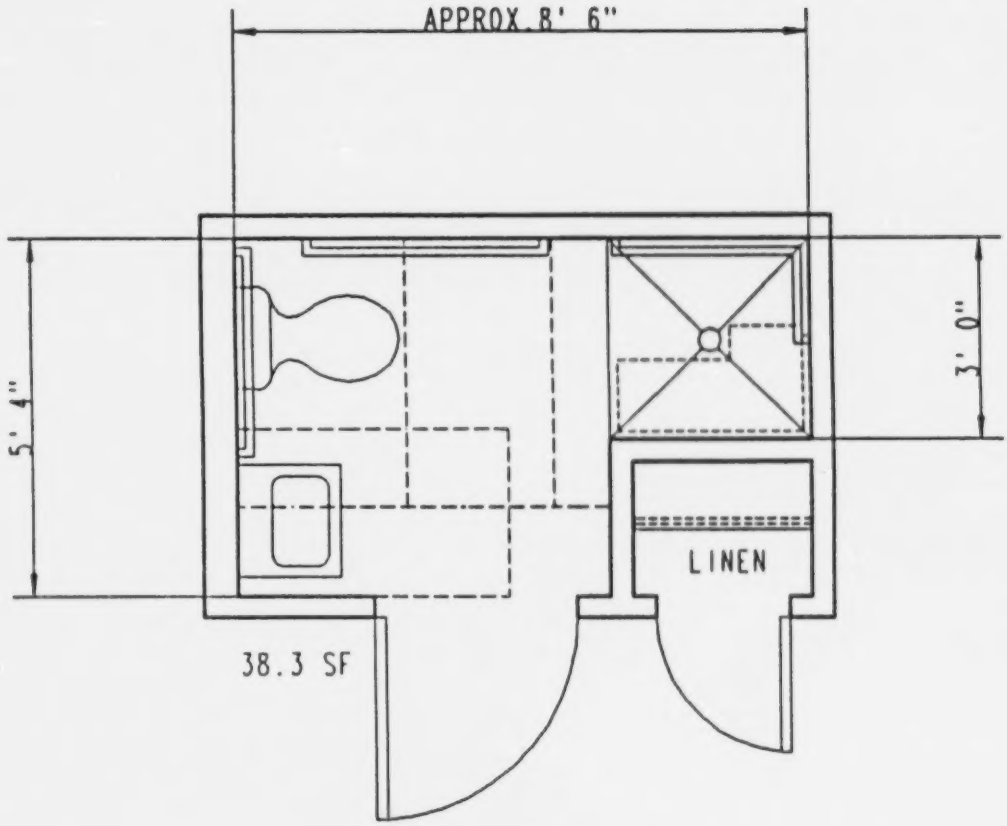
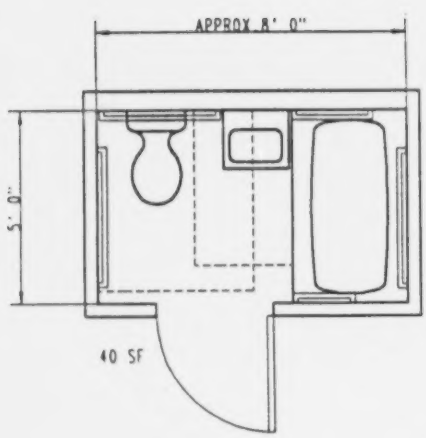


MINIMUM BATHROOM WITH TRANSFER SHOWER

FOR DWELLINGS



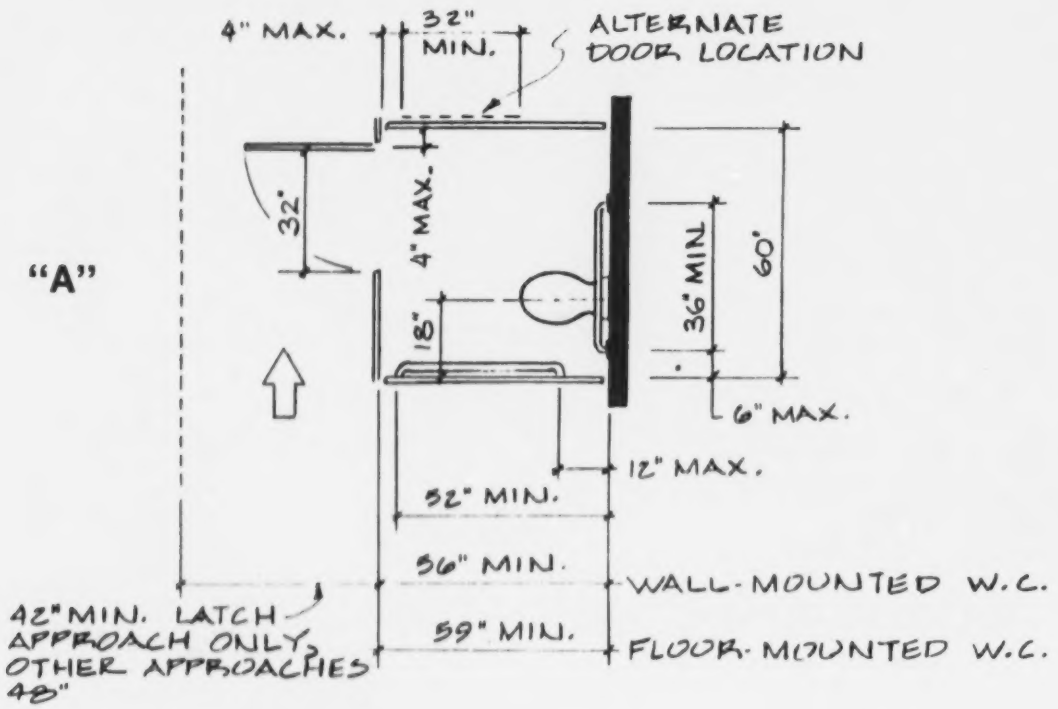
MINIMUM BATHROOM WITH TUB

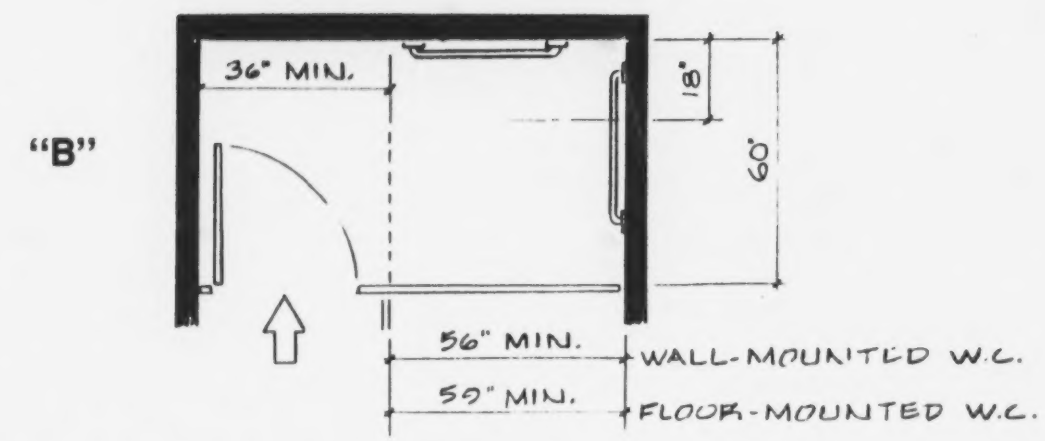
FOR DWELLINGS

Toilet Stalls

- ☑ Stall door shall have a minimum 32-inch clear opening.
- ☑ Stall door shall swing out (curtains acceptable in existing situations only).
- ☑ Stall sizes:
  - "A" (preferred; required in new construction): 60 inches wide by 56/59 inches long.
  - "B" (preferred): 60 inches wide by a minimum of 8 feet long.
  - "C" (alternate): 36 inches wide by a minimum of 66/69 inches long.
  - "D" (alternate): 48 inches wide by 66/69 inches long.

Figure 5-3. Accessible Toilet Stalls





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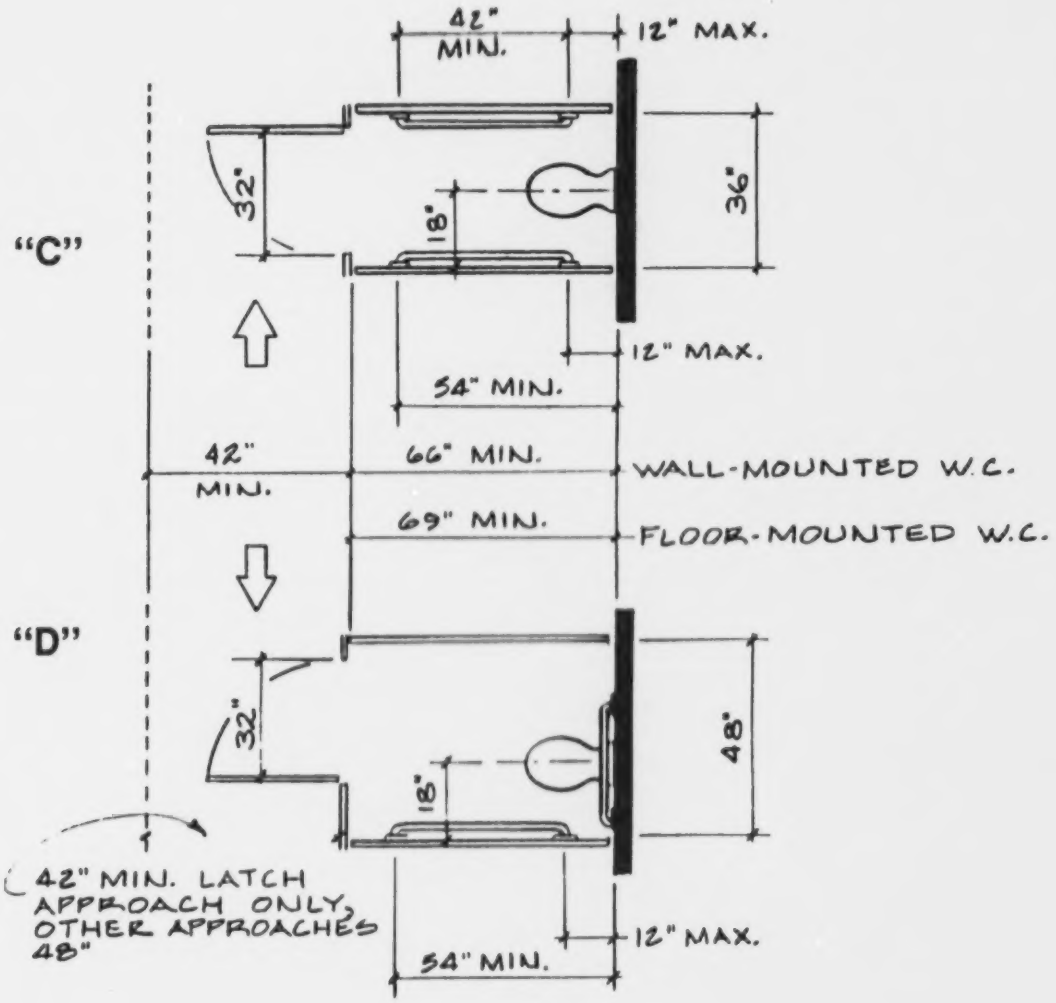


- ☑ Grab bars:
  - "A" and "B" stall: L-shaped horizontal grab bar.
  - "C" and "D" stall: mounted horizontally both sides.
- ☑ Toilet seat: 17 to 19 inches above floor level. This height can be created with a standard toilet by providing a thick toilet seat.
- ☑ Front and at least one side partition shall have a toe clearance of at least 9 inches. If depth is greater than 60 inches, no clearance is required.

Showers

There are two types of shower stalls that people with disabilities can use. The first is a roll-in shower, in which a person takes either a wheelchair or a special shower chair into the shower. The shower stall must be large enough to contain a wheelchair, and must not have a water-retaining curb. The controls shall be in reach (see Figure 5-6), and the space in front of the shower should provide ample room for maneuvering.

Figure 5-4. Grab Bars

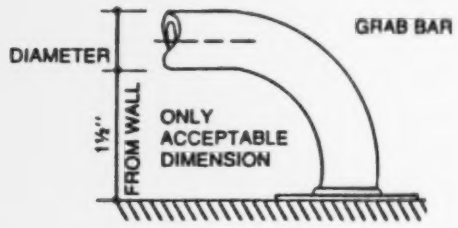


Figure 5-5. Toilet Elevation Showing Acceptable Heights

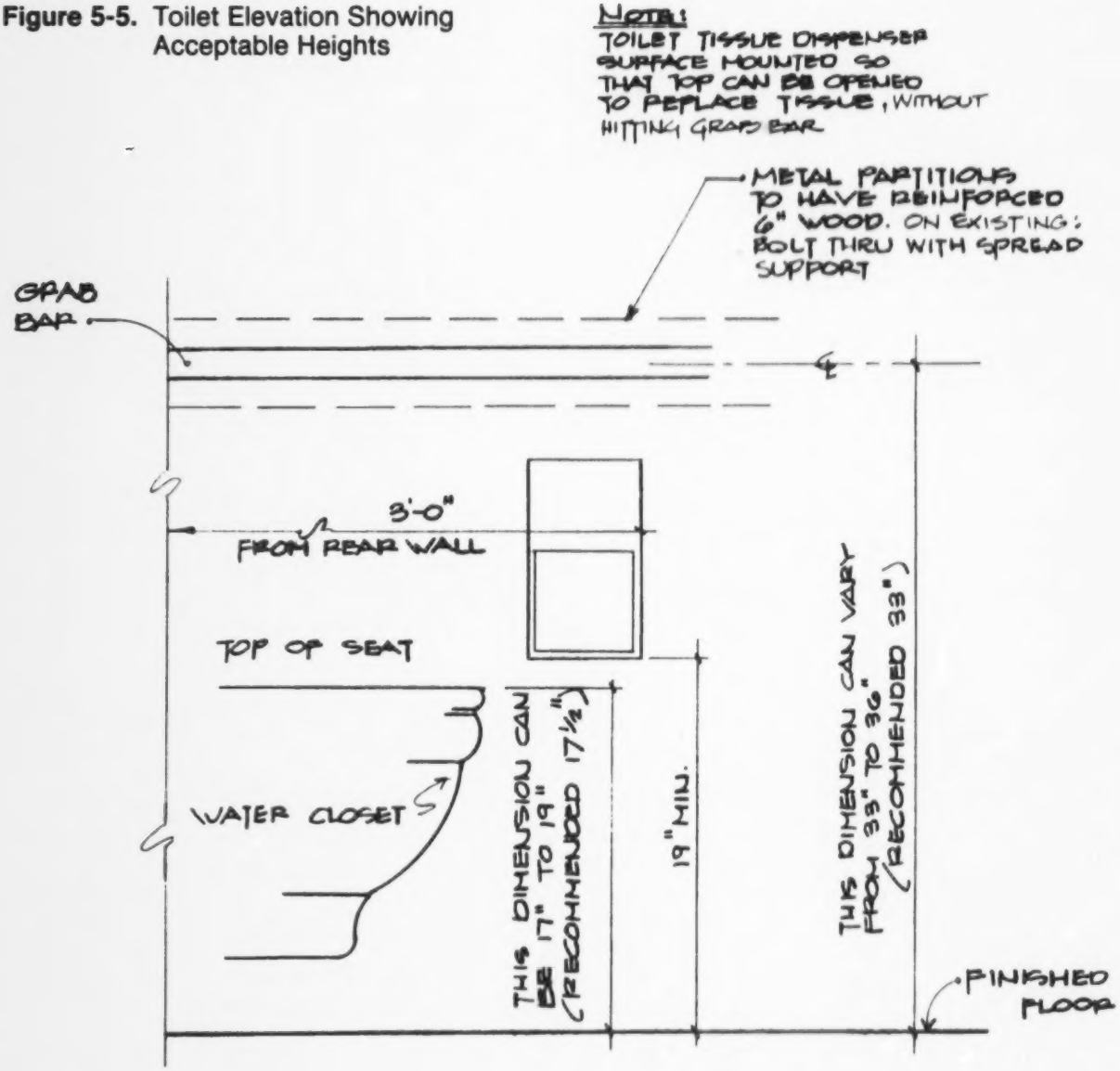
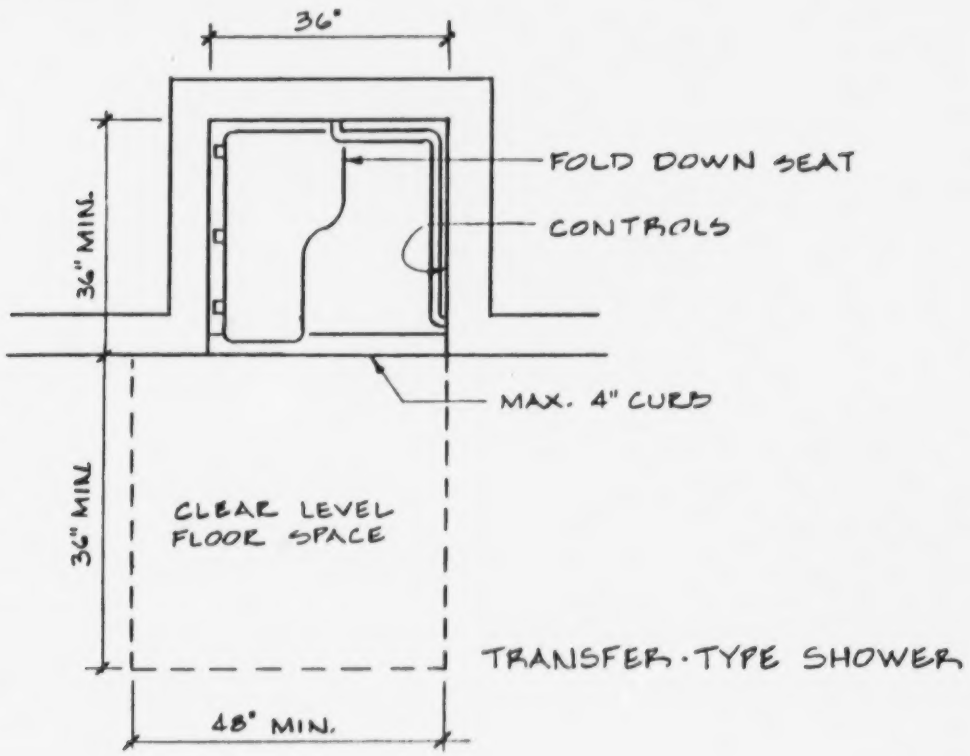
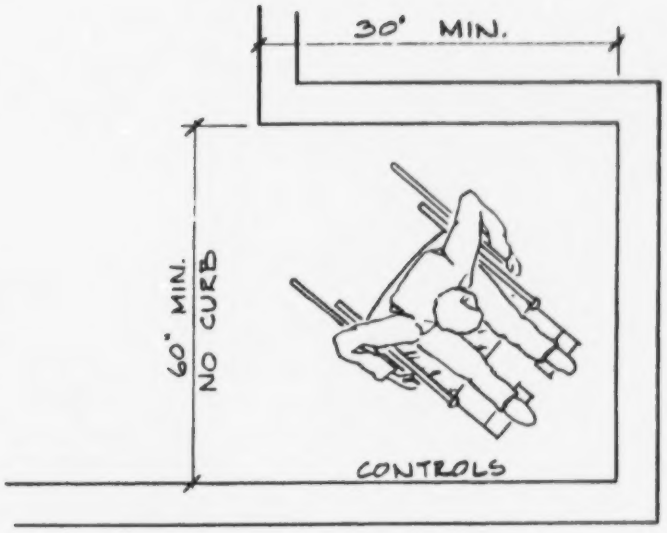

NOTE:
TOILET TISSUE DISPENSER SURFACE MOUNTED SO THAT TOP CAN BE OPENED TO REPLACE TISSUE, WITHOUT HITTING GRAB BAR
METAL PARTITIONS TO HAVE REINFORCED 6" WOOD. ON EXISTING: BOLT THRU WITH SPREAD SUPPORT
GRAB BAR
3'-0" FROM REAR WALL
TOP OF SEAT
WATER CLOSET
THIS DIMENSION CAN BE 17" TO 19" (RECOMMENDED 17½")
19" MIN.
THIS DIMENSION CAN VARY FROM 33" TO 36" (RECOMMENDED 33")
FINISHED FLOOR

Figure 5-6. Accessible Showers

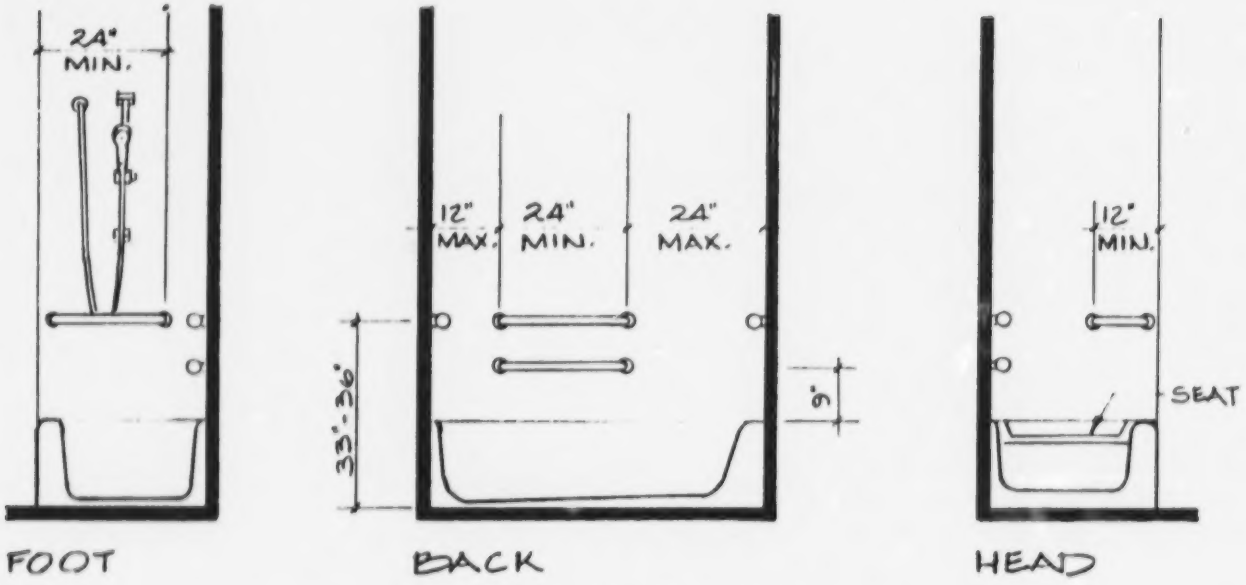


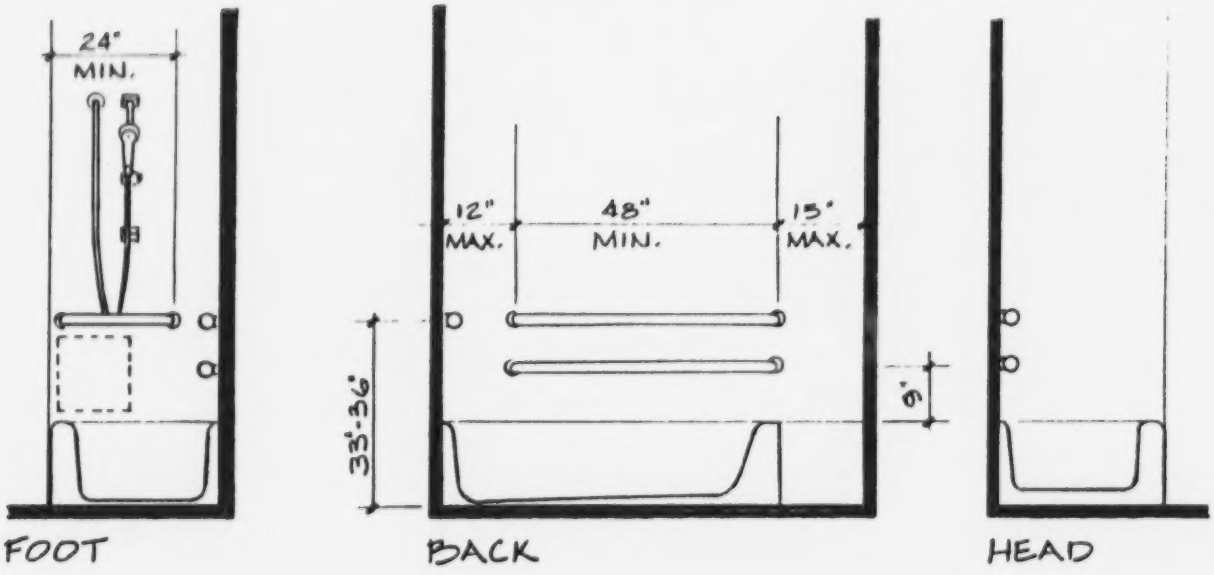
TRANSFER-TYPE SHOWER

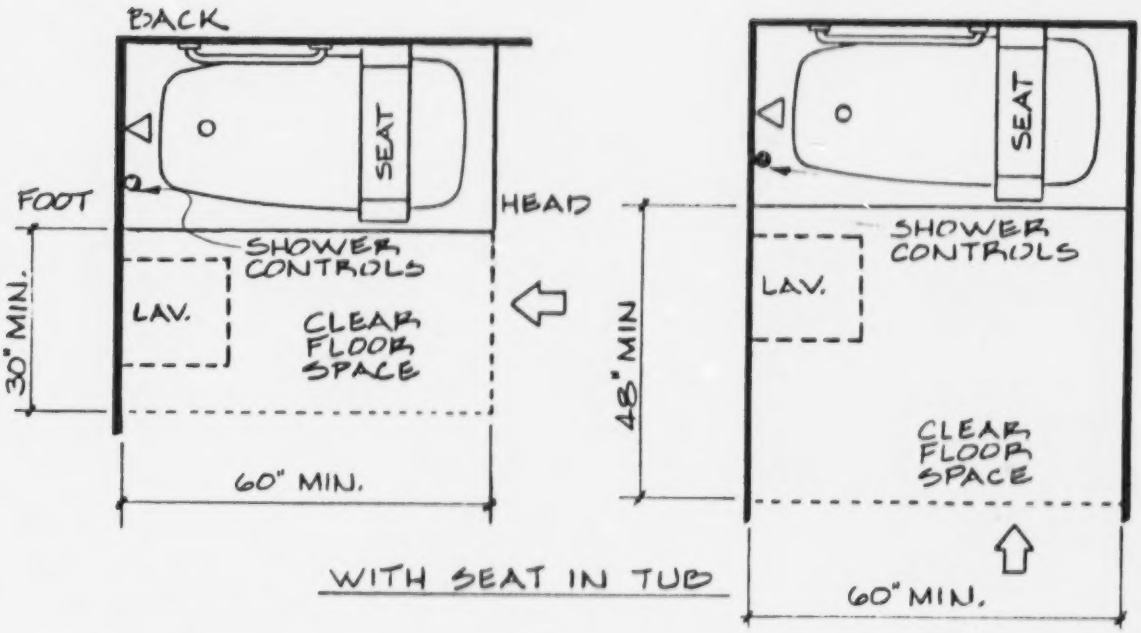


TYPICAL ROLL-IN SHOWER

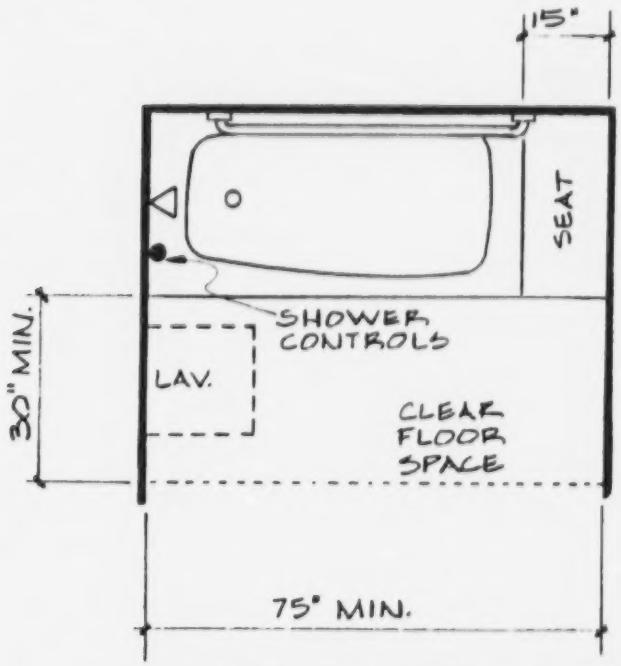
Figure 5-7. Accessible Bathtub Configurations







WITH SEAT IN TUB



WITH SEAT AT HEAD OF TUB

The second type of accessible shower is the 36-inch square shower in which a disabled person transfers to a fold-down or permanent seat. In this case, the shower can have a water-retaining curb, but it should be no higher than 2 to 4 inches so that the foot rests of the wheelchair can clear the curb while a person transfers to and from the seat.

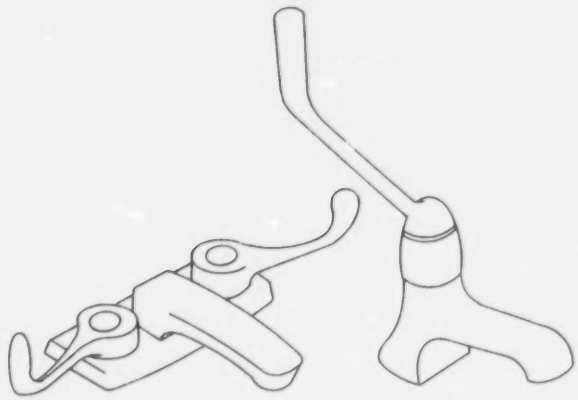
Bathtubs

Although most people with mobility disabilities prefer showers where they can transfer to a shower seat or take a shower in a shower chair, a bathtub can also be used. There are several tub seats available, ranging from a simple seat that spans the width of the tub to a more elaborate one that allows transfer from a wheelchair to the seat and then into the tub.

Lavatories and Restroom Accessories

- ☑ Top of lavatory, 31 to 34 inches.
- ☑ Height under apron of lavatory, 29 inches.
- ☑ Accessible handle for faucet.
- ☑ Towels and dispensers 48 inches above the floor.
- ☑ Drain pipes and water supply connections protected or insulated.

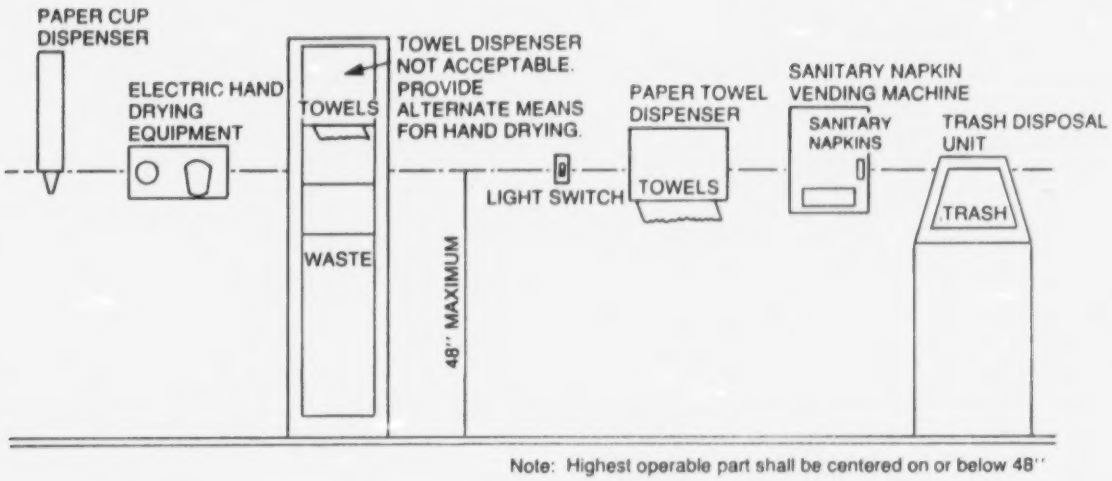
Figure 5-8. Accessible Handles for Faucets



- ☑ Mirror mounted with bottom no higher than 40 inches above the floor, or tilted mirror.
- ☑ Maximum 18 inches from lavatory front to faucet.

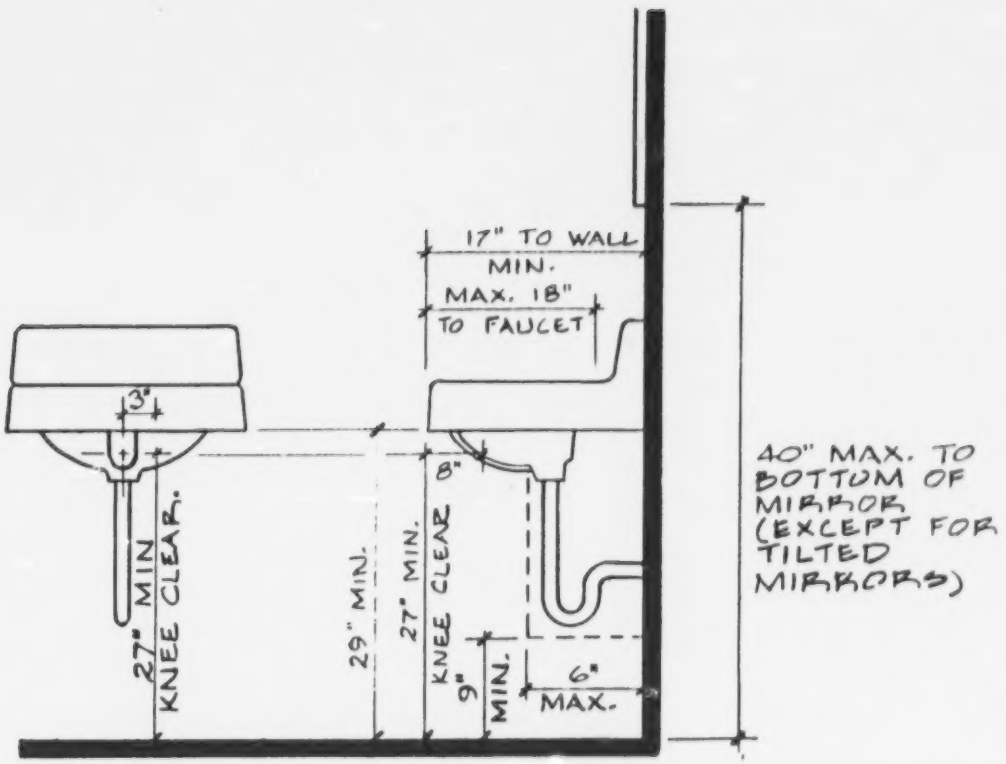
Note: If possible, the towel dispensers should not be located where a person has to reach over the lavatory. The towel dispenser also should not be located across the restroom, but rather on the wall adjacent to the lavatory. This frees a person using a wheelchair from having to use wet hands to propel the wheelchair to the towel dispenser.

Figure 5-9. Controls Within Reach



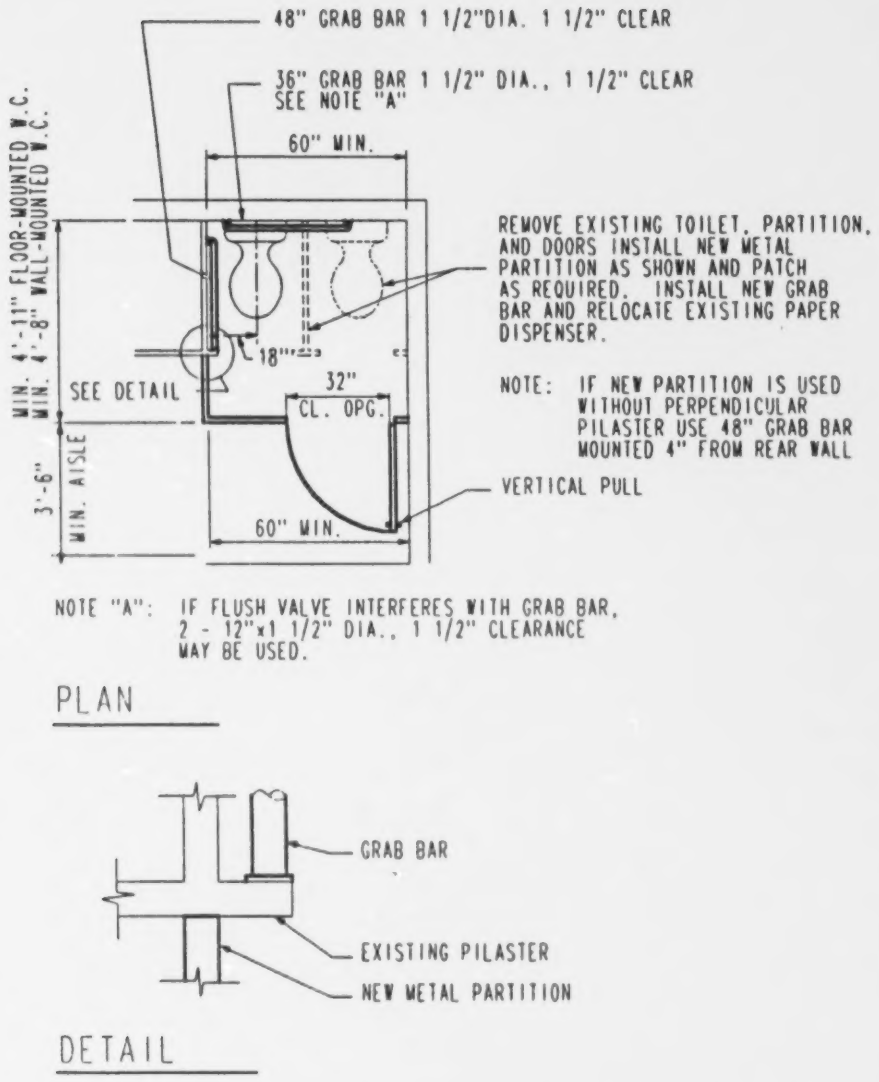
Note: Highest operable part shall be centered on or below 48"

Figure 5-10. Accessible Lavatory Dimensions



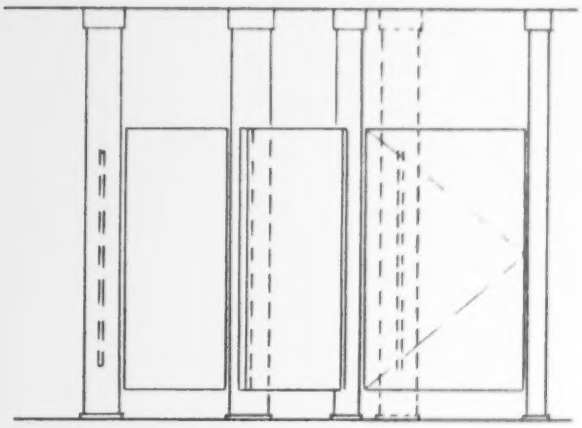
Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 5-11. Stall Modification


48" GRAB BAR 1 1/2"DIA. 1 1/2" CLEAR
36" GRAB BAR 1 1/2" DIA., 1 1/2" CLEAR
SEE NOTE "A"
60" MIN.
MIN. 4'-11" FLOOR-MOUNTED W.C.
MIN. 4'-8" WALL-MOUNTED W.C.
REMOVE EXISTING TOILET, PARTITION, AND DOORS INSTALL NEW METAL PARTITION AS SHOWN AND PATCH AS REQUIRED. INSTALL NEW GRAB BAR AND RELOCATE EXISTING PAPER DISPENSER.
18"
32"
CL. OPG.
SEE DETAIL
NOTE: IF NEW PARTITION IS USED WITHOUT PERPENDICULAR PILASTER USE 48" GRAB BAR MOUNTED 4" FROM REAR WALL
3'-6"
MIN. AISLE
VERTICAL PULL
60" MIN.
NOTE "A": IF FLUSH VALVE INTERFERES WITH GRAB BAR, 2 - 12"x1 1/2" DIA., 1 1/2" CLEARANCE MAY BE USED.
PLAN
GRAB BAR
EXISTING PILASTER
NEW METAL PARTITION
DETAIL

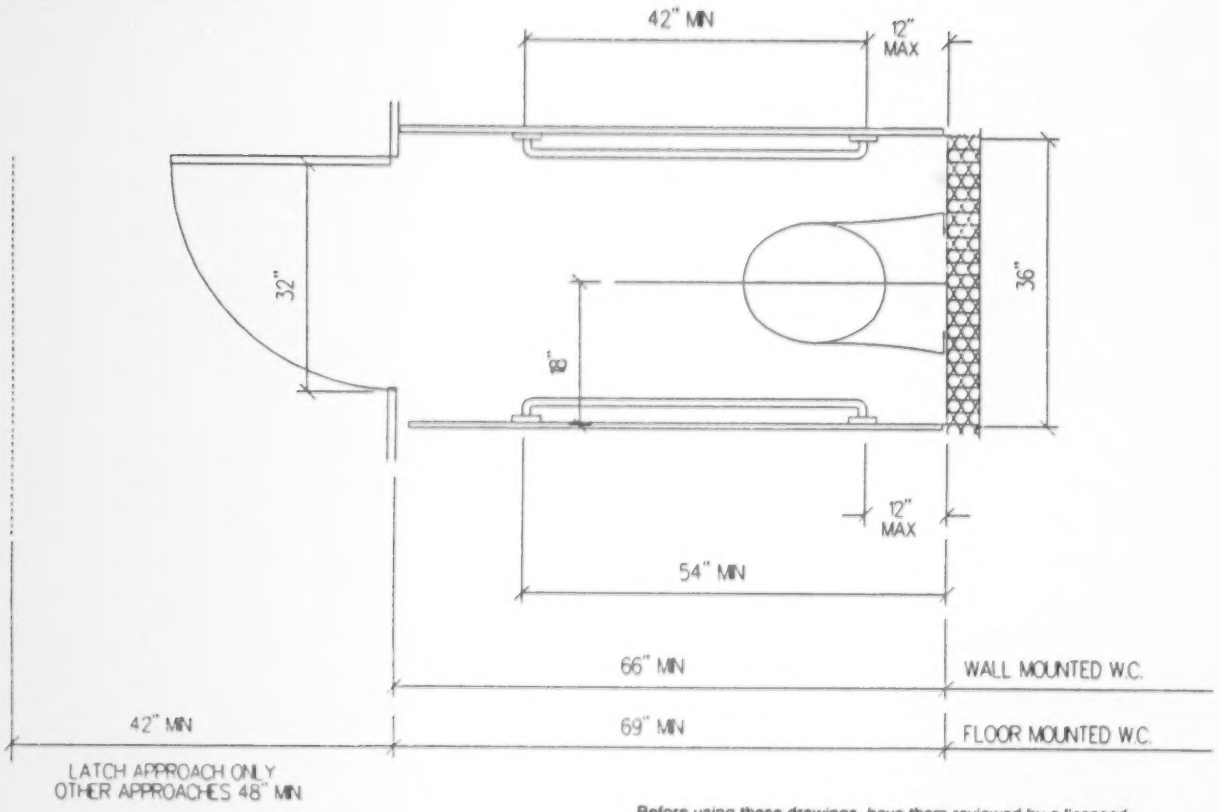
Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 5-12. Typical Conversion From Two Stalls to One Accessible Stall



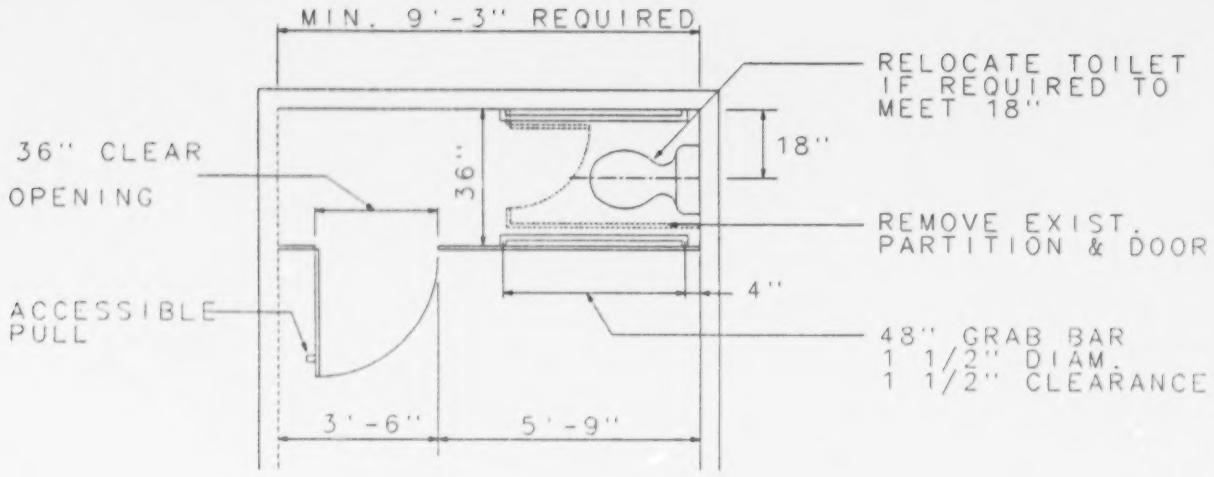
Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 5-13. Stall "B"



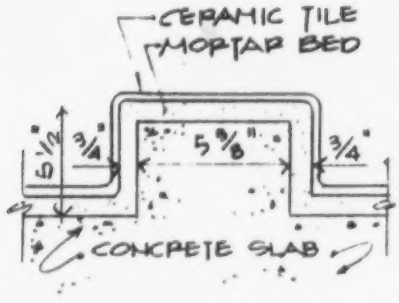
Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 5-14. Stall "C"



Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

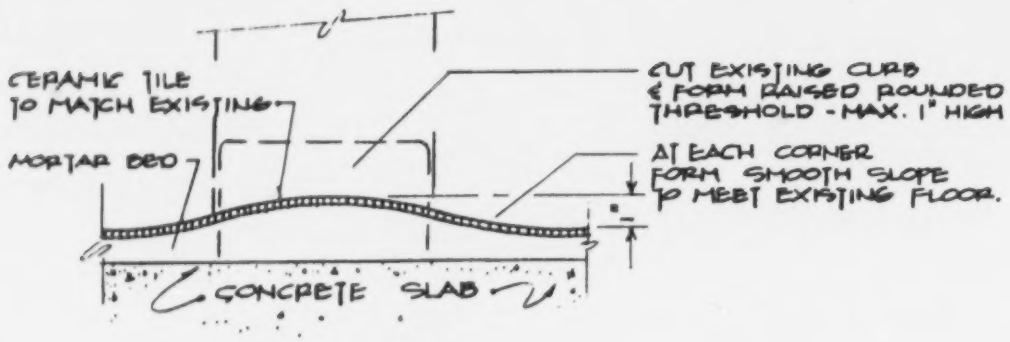
Figure 5-15. Existing to Accessible Shower Curb



TYPICAL EXISTING
Not to scale

(continued on next page)

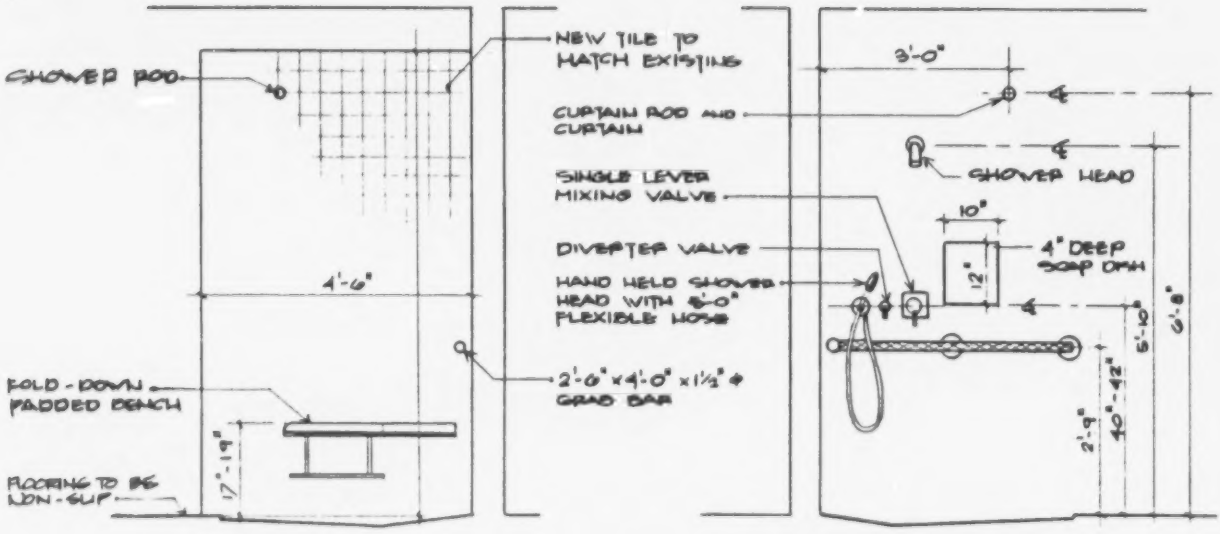
(continued from previous page)



MODIFIED ACCESSIBLE
Not to scale

Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 5-16. Shower "A" Transfer (No Curb)



Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

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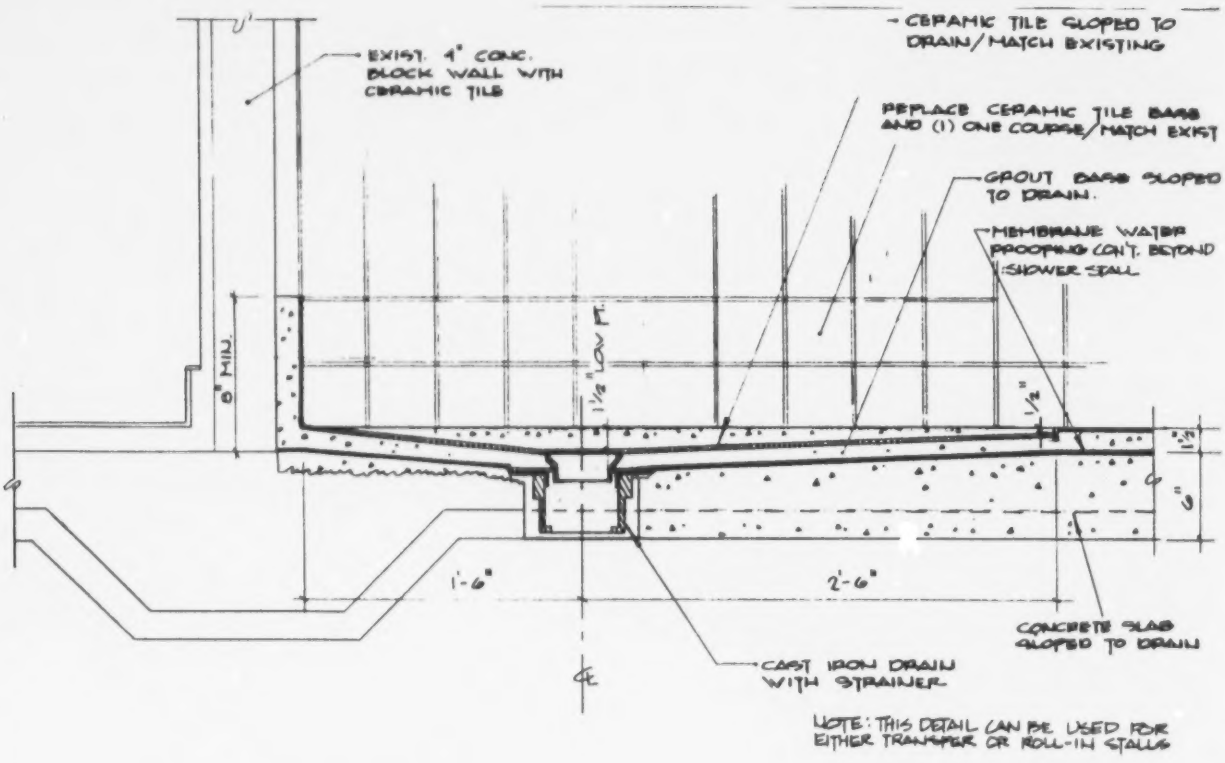
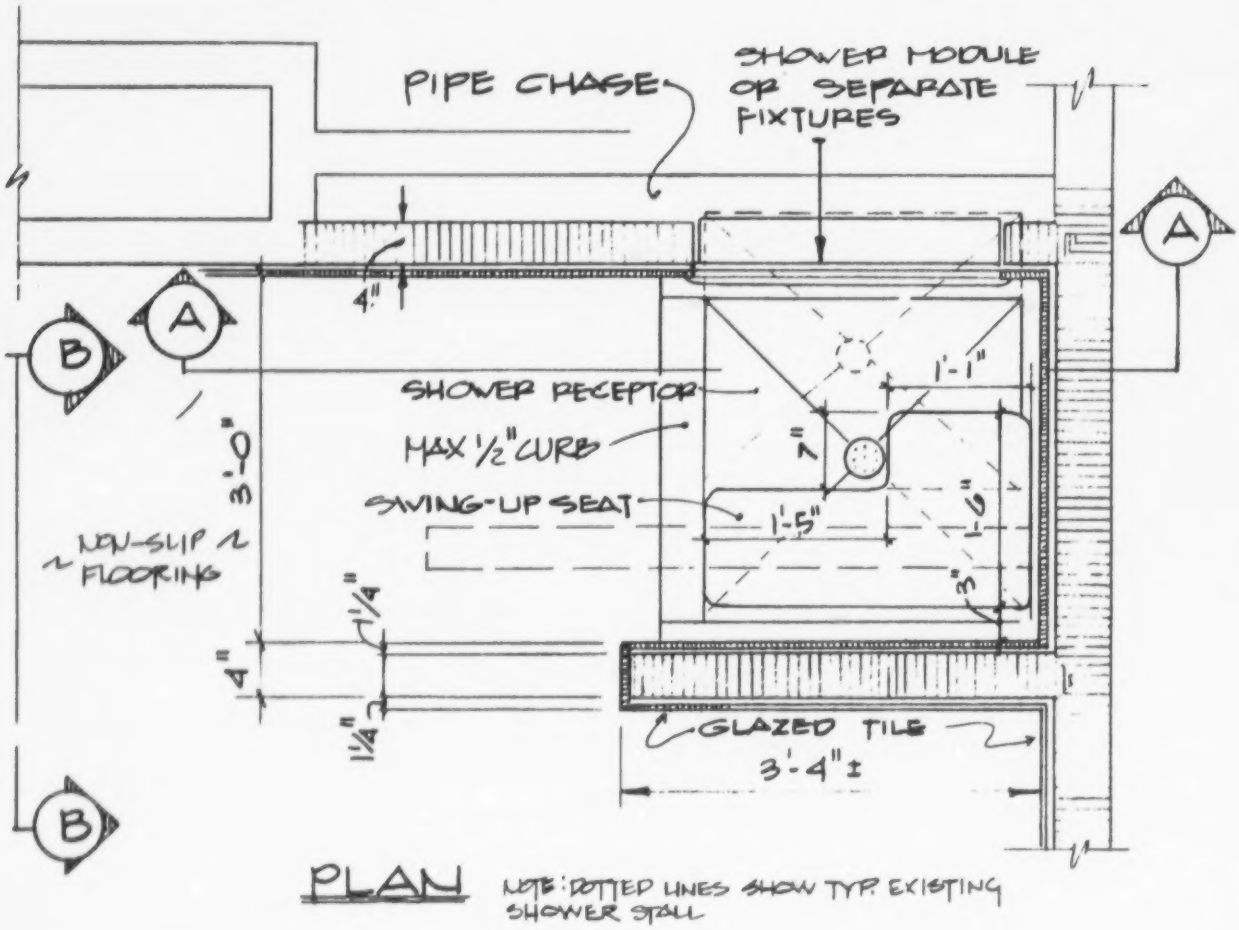
Figure 5-17. Shower "A" Pan Detail


EXIST. 4" CONC. BLOCK WALL WITH CERAMIC TILE
CERAMIC TILE SLOPED TO DRAIN/MATCH EXISTING
REPLACE CERAMIC TILE BASE AND (1) ONE COURSE/MATCH EXIST
GROUT BASE SLOPED TO DRAIN.
MEMBRANE WATERPROOFING CONT. BEYOND SHOWER STALL
8" MIN.
1½" LOW ±
1½"
1'-6"
2'-6"
CONCRETE SLAB SLOPED TO DRAIN
CAST IRON DRAIN WITH STRAINER
NOTE: THIS DETAIL CAN BE USED FOR EITHER TRANSFER OR ROLL-IN STALLS

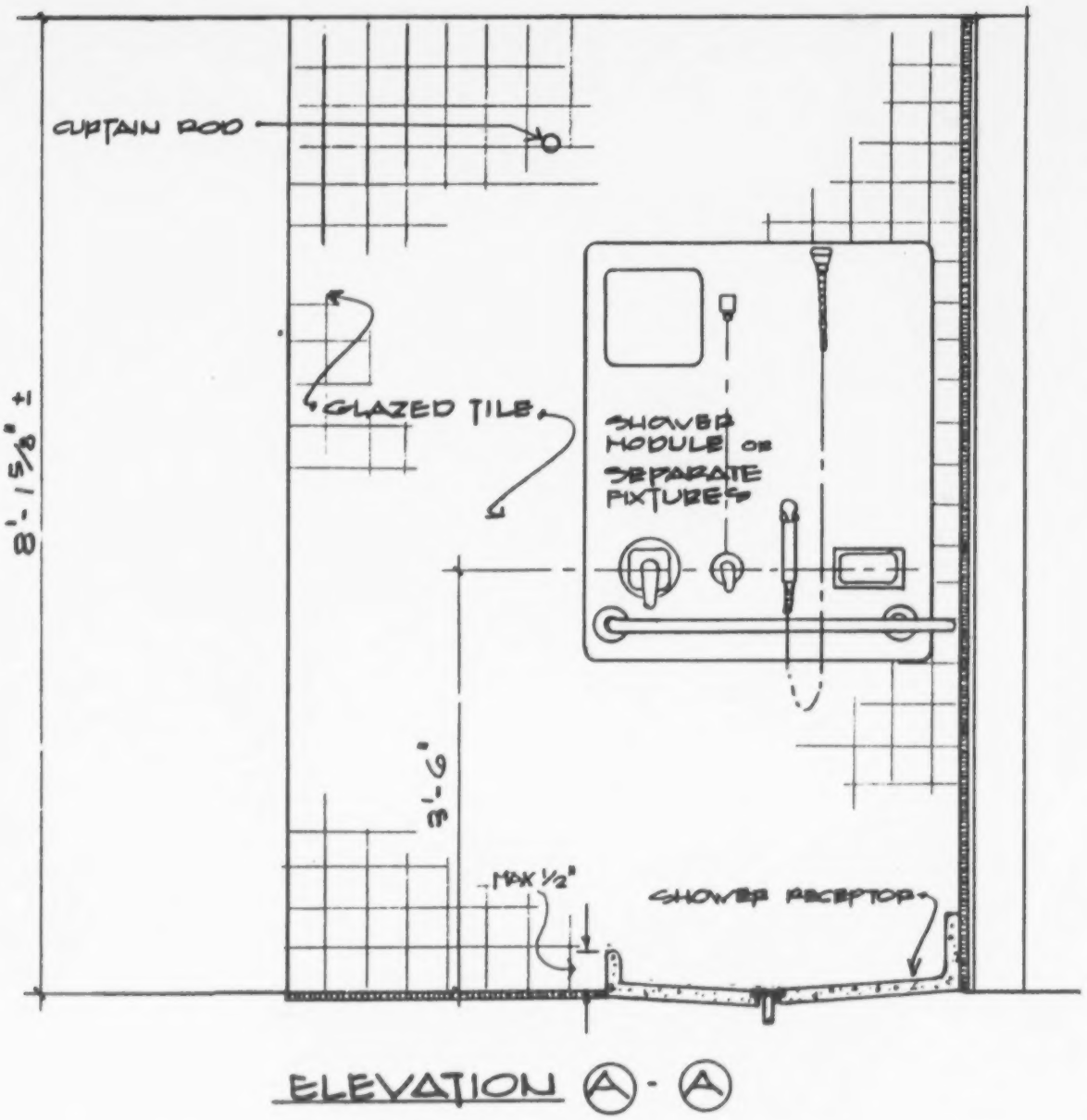
Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 5-18. Shower "B" Floor Plan



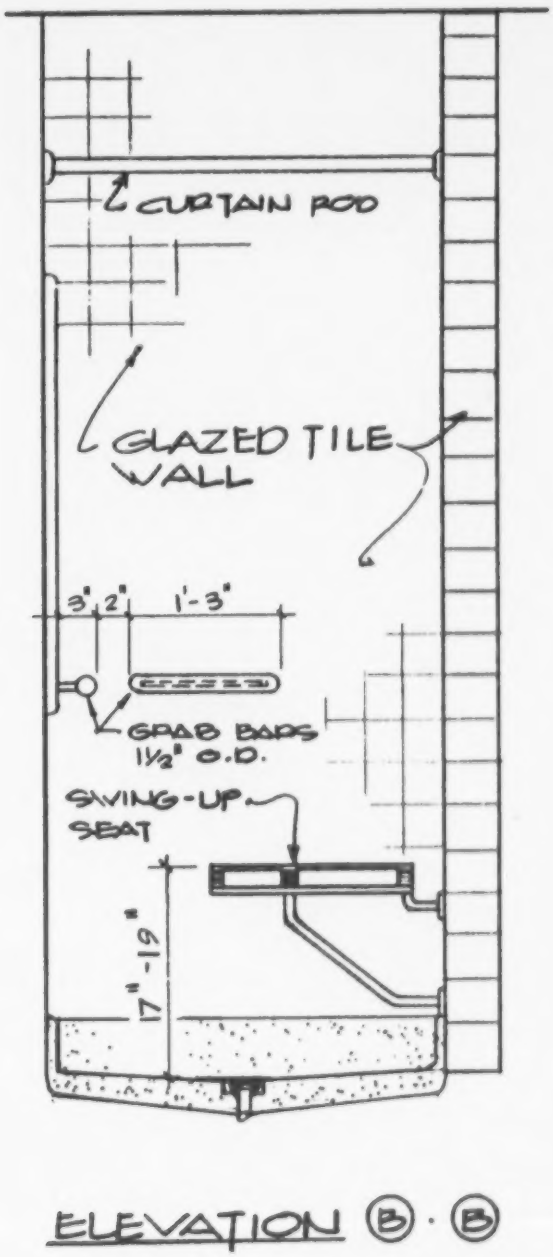
Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 5-19. Shower "B" Side Elevation



Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 5-20. Shower "B" Rear Elevation



Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Attaching Grab Bars

In the past, little attention was paid to the way grab bars were fastened to the walls and partitions in restrooms. As a result, in many cases grab bars have pulled from the wall or come loose. The most secure way to fasten a grab bar is to install a steel plate into the structural system of the wall and bolt the grab bar to the steel plate. Bolting into solid wood structural members provides the next best alternative.

For metal and plastic laminate toilet partitions, through-bolting should be used (with spreaders used in the metal partitions).

If through-bolting with steel plates is not feasible, heavy-duty anchor shields should be used.

Lavatory Selection and Criteria

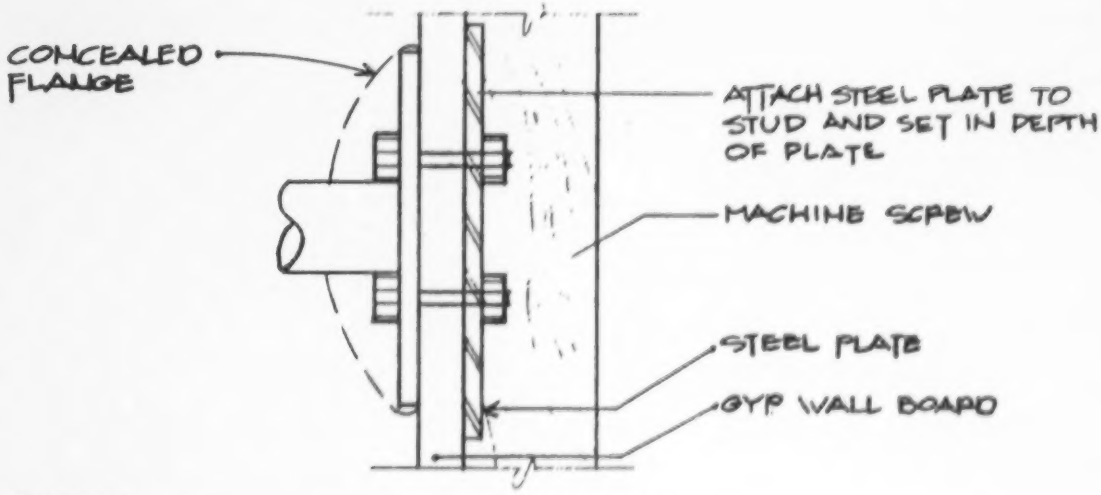
The most universal and easily used lavatory allows a person's legs to project under the lavatory. This front approach is preferred by most people because it permits closer access to the bowl and faucets. Most people find it comfortable to sit 4 to 8 inches from the front apron of the lavatory.

To allow clearance for a person's knees under the lavatory, a clear space of 27-1/2 inches AFF, measured back from the front apron a minimum of 8 inches, should be provided. This will allow a person using a wheelchair to come within 5 inches of the front apron. This 5-inch distance is measured from the front of the apron to the person's midriff. The knee clearance of 27-1/2 inches AFF should be measured back from the front apron 8 inches until the front face of the bowl is encountered. The clearance should not be measured to the face of the front overflow part of the bowl, but 3 inches off the center line of the lavatory, since a person's knees are not normally held firmly together but are separated slightly. If the bottom of the front apron is located at 29 inches AFF, people using bench-type arms on their wheelchairs can get even closer.

The preferred height of the rim of the lavatory is 32 inches AFF, but most of the lavatories manufactured today will not allow this 32-inch height to be met without violating the knee clearance requirement of 27-1/2 inches. A maximum rim height of 34 inches AFF is acceptable if the knee clearance cannot be met with the 32-inch top height.

The lavatory shall project a minimum of 17 inches from the wall, so that a person using a wheelchair can get close to the lavatory front apron without the footrests of the wheelchair hitting the rear wall.

Figure 5-21. Stud Walls With Steel Plate

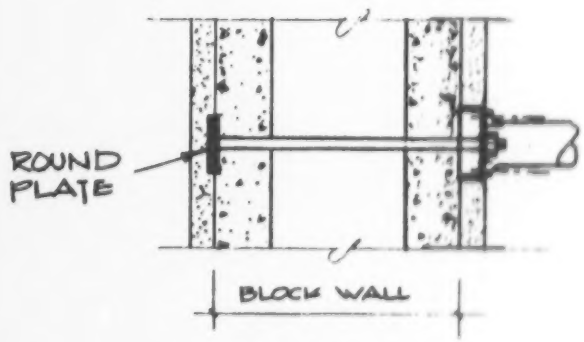


NOTE:
THE BEST METHOD FOR INSTALLATION IN WOOD OR METAL STUD WALLS IS "IN-WALL" BETWEEN STUD OR UNIVERSAL ANCHOR PLATES.
FASTEN TO STUDS BEFORE WALL IS APPLIED.
RECESS AS REQUIRED FOR FLUSH FINISH WALL APPLICATION.

Not to scale

Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

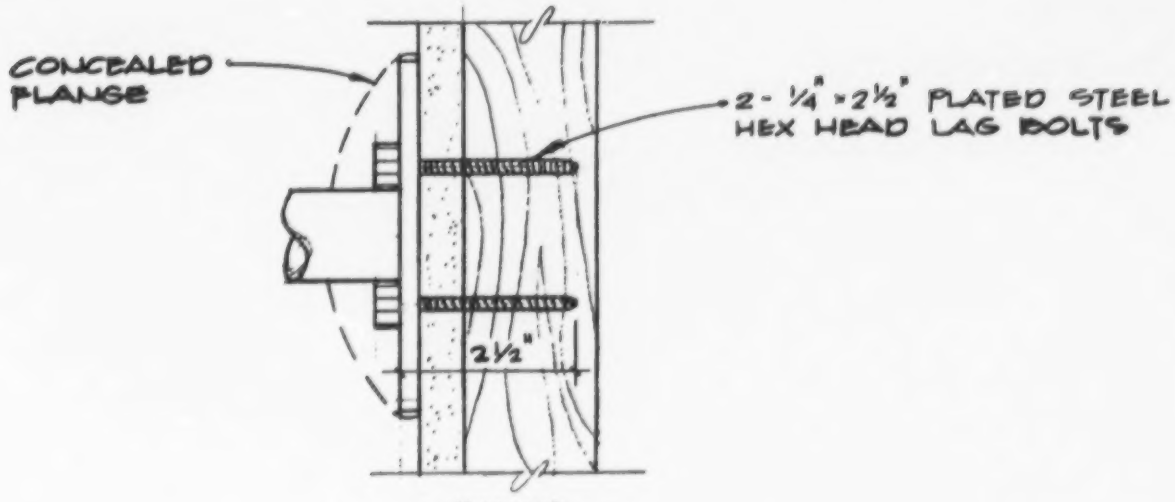
Figure 5-22. Block or Masonry Walls



Not to scale

Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

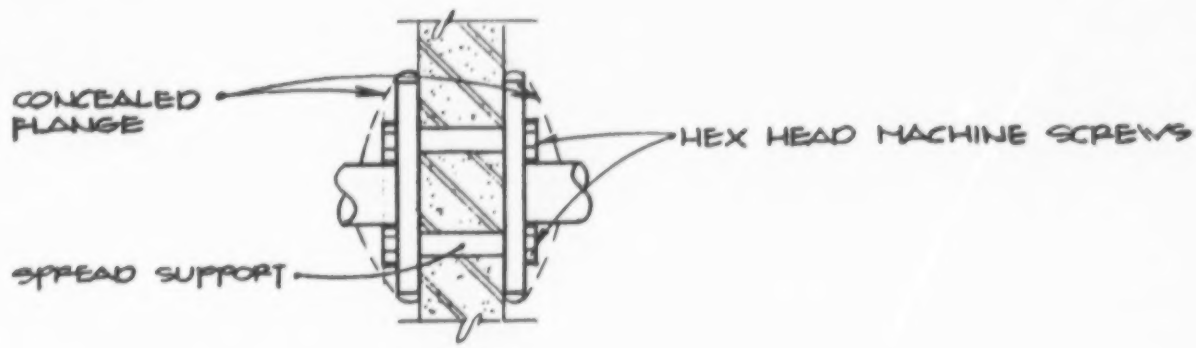
Figure 5-23. Stud Walls With Wood Blocking



Not to scale

Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 5-24. Anchoring Device at Metal Partition Wall (Back-to-Back Grab Bars)



Not to scale

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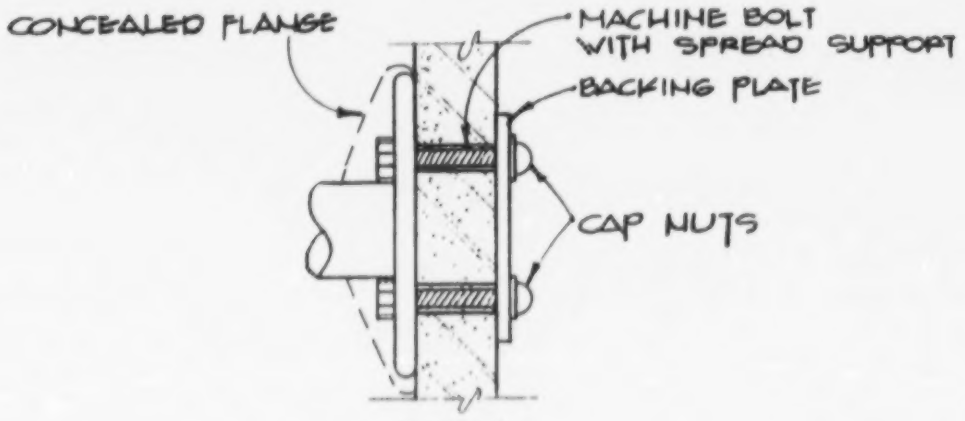
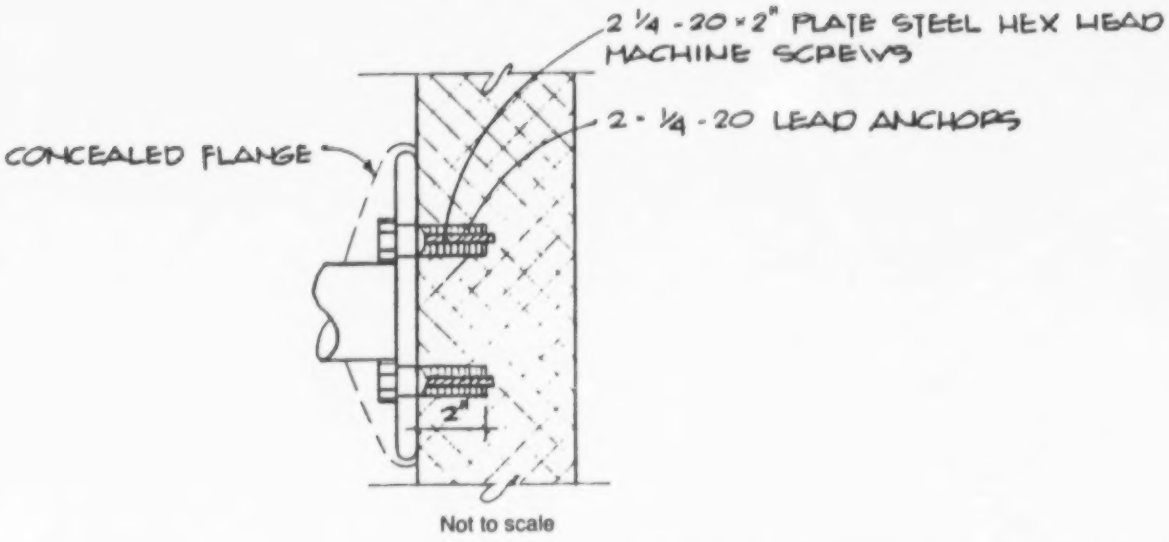
Figure 5-25. Anchoring Device at Metal Partition Wall (On Single Side)



Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 5-26. Anchoring Device at Masonry Wall



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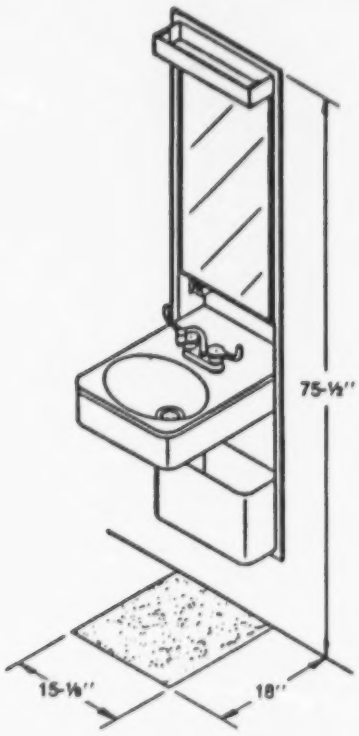
There are three types of lavatories that can be used to provide accessibility:

Wall Hung. These units, made of vitreous china or enameled cast iron, can be hung with wall hangers or chair carriers with concealed or exposed arms. When an existing lavatory is replaced, it should be checked to determine whether the replacement lavatory will fit on the existing chair carrier (in which the height can be adjusted), or whether a new carrier will be required.

There are several 20-inch by 27-inch wheelchair lavatories currently available. These units require a chair carrier and occupy 9 more inches of space than a standard 20-inch by 18-inch unit. This space requirement could be a problem in a small restroom, and some disabled people have complained that these units are difficult to use.

Stainless Steel Combination Units. These units can be purchased equipped with towel dispensers, mirrors, soap dispensers, blade or lever handles, and trash dispensers. They are rectangular and have protected drains concealed within the unit. The lavatory projects out 17-1/2 to 22 inches from the wall, and the narrow width allows close approach.

Figure 5-27. Stainless Steel Combination Unit



Countertop. This type of lavatory can be accessible if the countertop is designed without a deep apron. The same clearance restrictions that apply to wall-hung units apply to countertop units. The main advantage with a countertop unit is that an extra 2 or 3 inches of vertical clear space can be obtained in front because the lavatory bowl is set back from the front apron.

Construction Specifications

The following specifications are not all-inclusive. They represent certain standard items that should be included as applicable in any specification for restrooms that are to be made accessible.

Toilet and Shower Compartments. Constructed as drawn for toilet partitions, except that door clear opening shall not be less than 32 inches wide and the door shall swing into the toilet room. Doors shall be equipped with special hardware of matching finish, and handles on both sides of the door shall be provided for ease of entry. Panels shall be reinforced for grab bars.

Equip each new or remodeled compartment with a rubber-tipped coat hook, located no higher than 54 inches AFF. Provide each door with slide bar latch and keeper. Hang doors on concealed gravity hinges. New

Figure 5-28. Countertop Lavatory

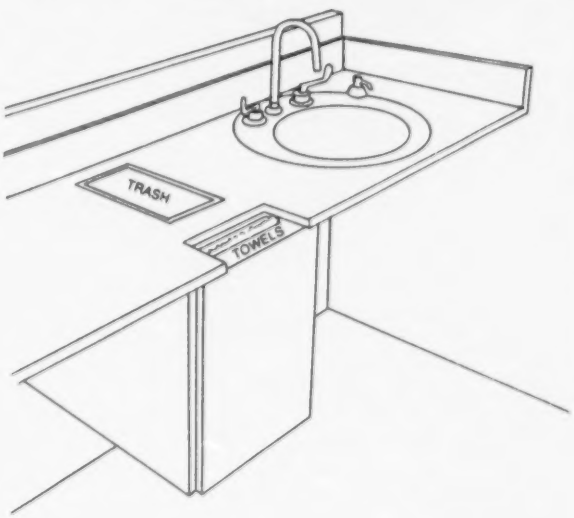
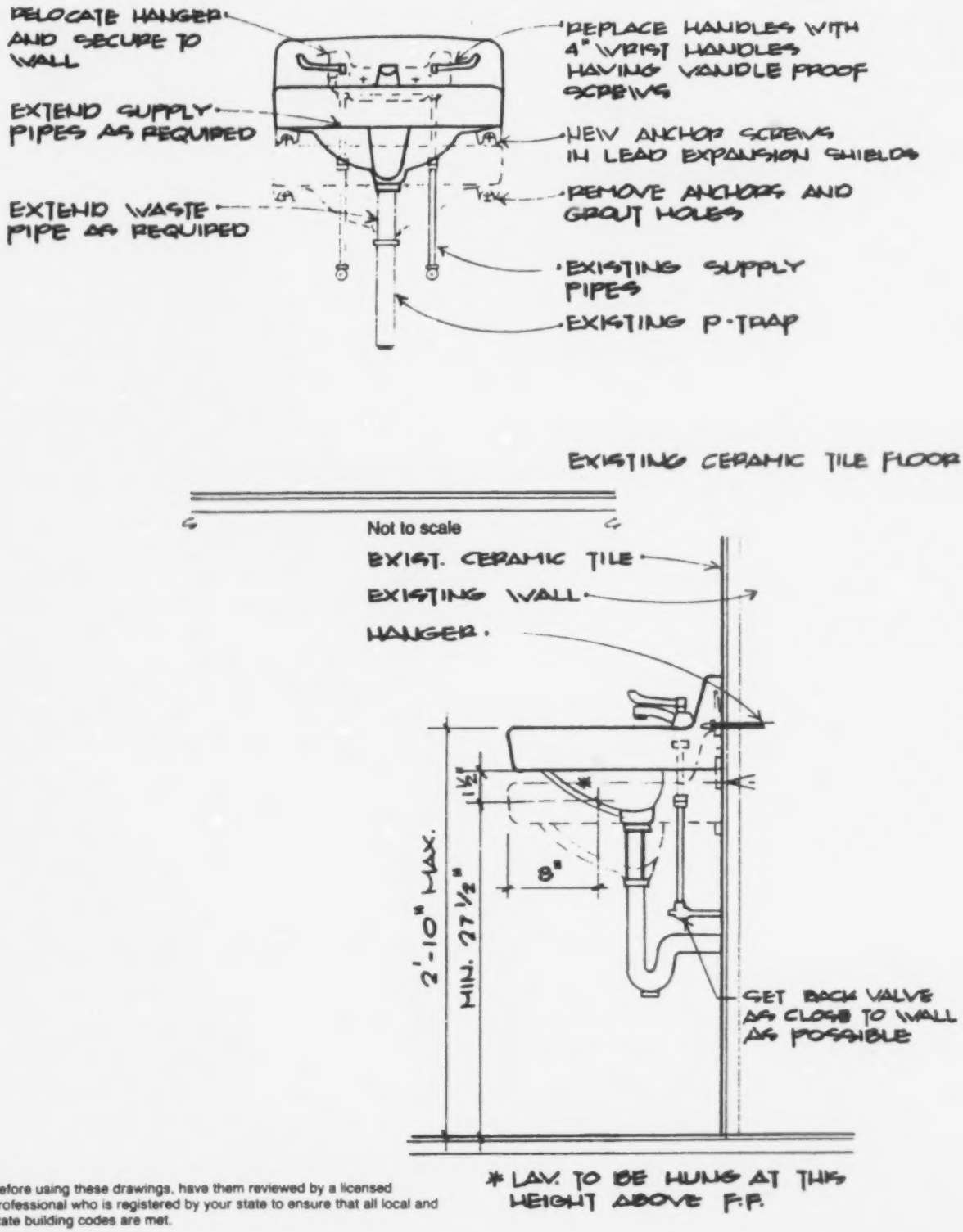


Figure 5-29. Existing Typical Lavatory Modification Details


RELOCATE HANGER AND SECURE TO WALL
EXTEND SUPPLY PIPES AS REQUIRED
EXTEND WASTE PIPE AS REQUIRED
REPLACE HANDLES WITH 4" WRIST HANDLES HAVING HANDLE PROOF SCREWS
NEW ANCHOR SCREWS IN LEAD EXPANSION SHIELDS
REMOVE ANCHORS AND GROUT HOLES
EXISTING SUPPLY PIPES
EXISTING P-TRAP
EXISTING CERAMIC TILE FLOOR
Not to scale
EXIST. CERAMIC TILE
EXISTING WALL
HANGER
1½"
8"
2'-10" MAX.
MIN. 27½"
GET BACK VALVE AS CLOSE TO WALL AS POSSIBLE
* LAV. TO BE HUNG AT THIS HEIGHT ABOVE F.F.

Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

hardware shall match existing hardware. Existing hardware may be reused where acceptable to architect. Provide theft-resistant fasteners for exposed accessory mountings.

Reinforcement. Reinforce walls and partitions for grab bars, towel dispensers, and folding seats. Reinforcement shall be hardwood or steel plate. Provide 8-inch-wide strips for grab bars, centered 33 inches above the floor.

Water Closet Seat Lift and Seat. Water closet seat lift includes total integral unit consisting of independently hinged riser seat and independently hinged, elongated open front seat. Solid plastic seat is fitted with hollow core plastic lift to match the configuration of existing or new water closet, and which raises the top of the seat above the finished floor to 17-1/2 inches. Hinge of seat is to be check type. Both seat and lift to raise, and be white in color.

Note: Wherever possible, the existing seats shall be disconnected and reused with the new lift. All existing items not reused shall revert to the owner.

Shower Stalls. An accessible shower stall shall be 36 inches square and equipped with a hinged, fold-down, padded bench seat with retaining latch or hook-and-eye. The seat maintains an upright position when not in use, is located at the front edge of the shower bench within easy reach and 18 inches in height from the stall floor level, and mounted on the stall sidewall opposite the main shower head and controls. Shower controls use blade or lever type handles that are mounted no higher than 40 inches above stall floor level. The hose spray is at least 60 inches in length with a nozzle hook mounted 40 inches above the floor level. An accessible threshold is either not over 1/2 inch in height, or is ramped to conform to criteria. The recessed soap dish and a utility area are at least 6 inches deep, 10 inches wide, and 12 inches high. All controls, shower heads, and recessed areas shall be located on the wall opposite the fold-down bench seat in this stall, which has a maximum width of 36 inches.

Folding Shower Seat. Seat shall fold up against the wall or down for seating. Frame, supports, and brackets shall be satin finish type 114 stainless steel. Seat shall be 2 inches thick Naugahyde-filled with rubberized film material of a closed cell nature that will not be adversely affected by moisture, mounted on marine plywood or other equivalent material. Shower grab bars shall be located so as to permit the seat to be raised.

Grab Bars. Grab bars should be provided with a non-slip gripping surface.

- All grab bars shall have an outside diameter of 1-1/2 inches.
- All grab bars shall have concealed mountings and be installed in strict accordance with manufacturer's recommendations.
- Bars shall be able to sustain a dead weight of 250 pounds.
- Sizes and shapes shall be as indicated on drawings.
- Bar shall be 1-1/2 inches from wall.
- Manufacturer shall furnish all plates, anchors, and fasteners required. Concealed items shall be noncorrosive.
- All exposed screws and bolts shall have theft-resistant fasteners.
- Shower grab bars shall be located so as to permit the seat to be raised.

Lavatory and Trim. Under each accessible sink there shall be a minimum knee clearance (taking into account both the counter apron and the bottom of the basin contour) of 27-1/2 inches vertically, for a horizontal distance of 8 inches from the front edge of the lavatory. The 8-inch horizontal measurement should be taken 3 inches from the center line of the lavatory. The bottom edge of the apron, if provided, shall not be less than 29 inches AFF.

Drain pipes and hot-water pipes under a lavatory shall be covered or shielded to protect an individual in a wheelchair from burns.

Faucet handles for accessible lavatories shall be of blade type and be mounted no farther than 18 inches in reach from the front edge of the lavatory.

Chapter 6

Drinking Fountains and Pay Telephones

Drinking Fountains

Water fountains and coolers are not luxuries for people with disabilities. Potentially fatal bladder and kidney illnesses can result from a person's inability to remain upright and move about. People who use wheelchairs must consume relatively large amounts of fluids throughout the day to dilute the urine and decrease the likelihood of infection.

On each floor of a building, at least half of the drinking fountains shall be accessible and meet the requirements below. If there is only one fountain on the floor, it must be accessible and of the "hi-lo" type, or two separate fountains shall be provided. Every major drinking fountain manufacturer provides accessible coolers and fountains that have push bars on the front instead of handles. Some newer fountains and coolers even have sensors that activate the cooler when someone approaches it.

For an existing drinking fountain, a cup dispenser can be attached to make it accessible, but this will only work if the fountain has a level area for cup placement and if the controls are easily operated. If these requirements cannot be met, the drinking fountain must meet the following criteria to be considered accessible:

- ☑ Height of spout outlet above the floor is a maximum of 36 inches.
- ☑ Controls are up front or on the side near the front and consist of a lever, an easily pushed button or plate, or a sensing device.
- ☑ Spout is up front, and the water flows parallel to the front of the fountain. Round or oval bowls shall have a spout that is positioned so the flow of water is within 3 inches of the front edge of the fountain.
- ☑ Water flow is a minimum of 4 inches high.
- ☑ Fountain can be operated by hand, or by foot and hand.
- ☑ If the fountain is located in a recess, it must meet the requirements set forth in Figure 6-2.

If there is no existing drinking fountain in the facility, it is not necessary to provide one solely for the use of disabled people.

If an existing drinking fountain meets all but the height requirements, it can be lowered for acce. sibility.

The best location for an accessible drinking fountain is near the accessible restroom. At a minimum, there should be the same number of accessible drinking fountains as there are accessible restrooms (one per male and female restroom).

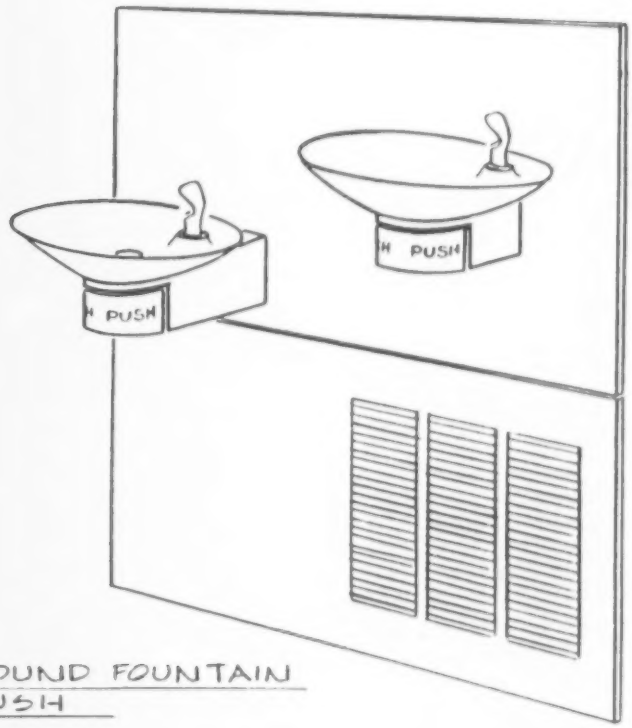
It is not necessary to lower all the drinking fountains in the building; a lower fountain can become a barrier to taller people with back trouble.

Public Pay Telephones

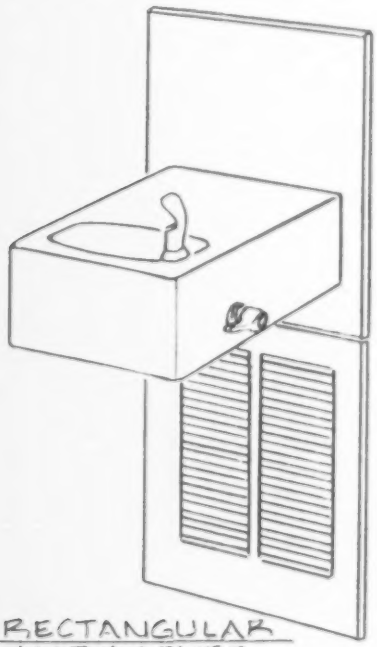
If public pay telephones, public closed circuit telephones, or other public telephones are provided, the following requirements should be met:

- If one or more single units are located on a floor, at least one must comply with ADAAG. Additional public telephones may be installed at any height. Unless otherwise specified, accessible telephones may be either forward or side reach telephones.
- If one bank of two or more telephones is provided on a floor, at least one telephone in the bank must be accessible.
- If two or more banks are provided on a floor, one telephone per bank should be accessible. The accessible unit may be installed as a single unit in proximity (either visible or with signage) to the bank.

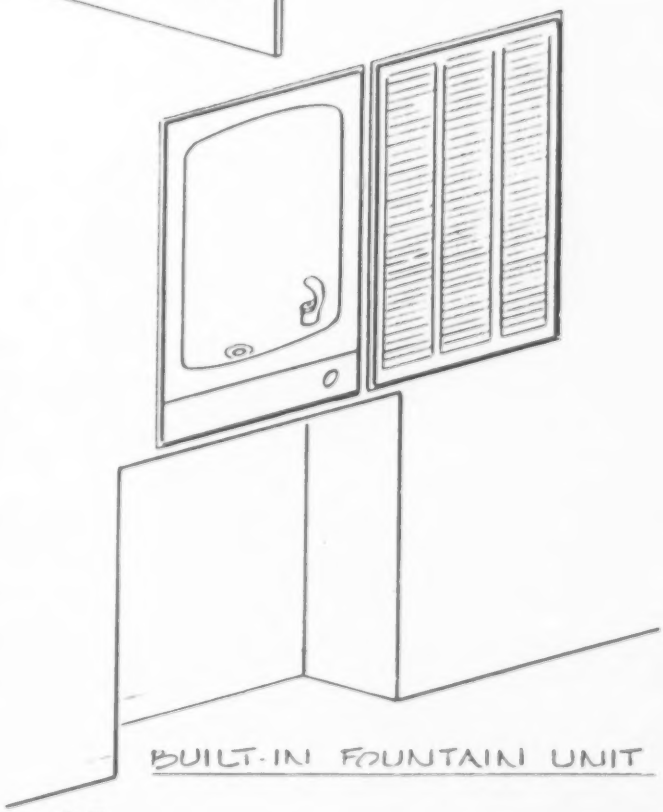
Figure 6-1. Typical Fountain Configurations



DUAL ROUND FOUNTAIN WITH PUSH

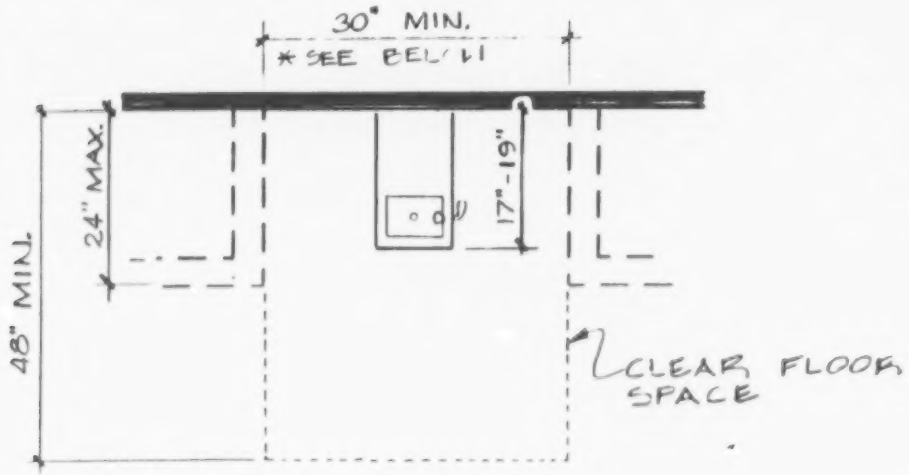


SINGLE RECTANGULAR SHAPED WITH LEVER



BUILT-IN FOUNTAIN UNIT

Figure 6-2. Plan View of Alcove With Fountain



NOTE: IF FRONT OF FOUNTAIN IS NOT FLUSH WITH OR SLIGHTLY PROJECTING INTO CORRIDOR: THEN RECESS HAS TO BE LARGER, 36" MIN.

Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

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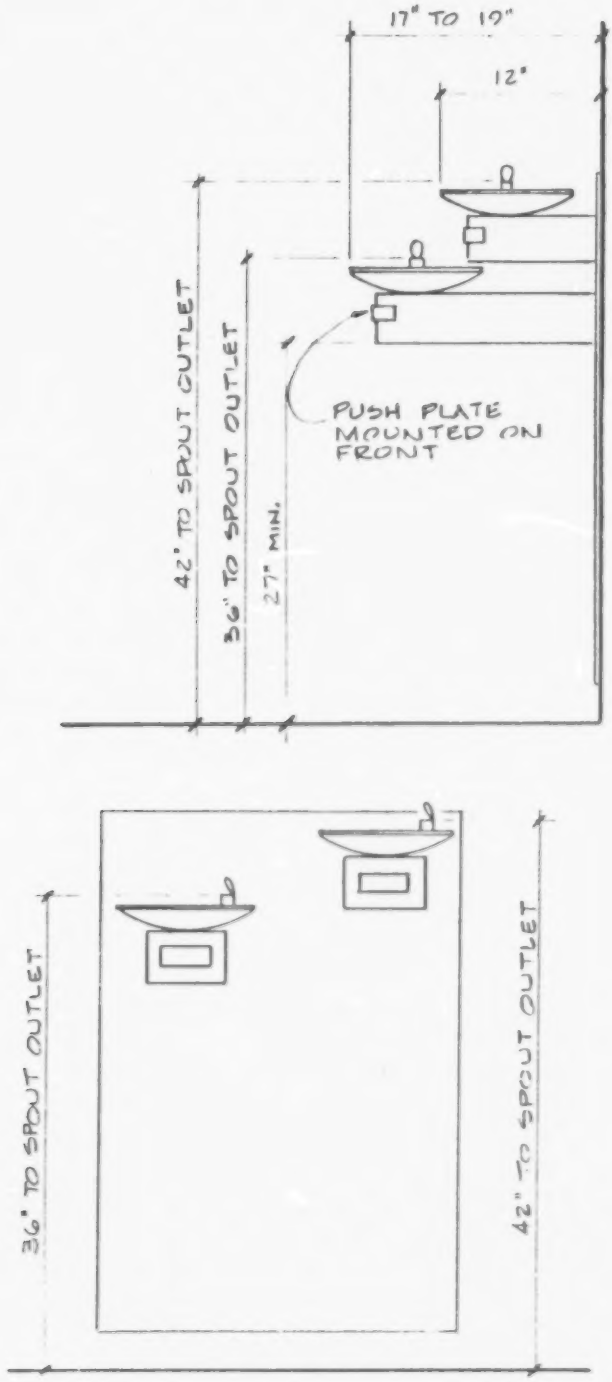
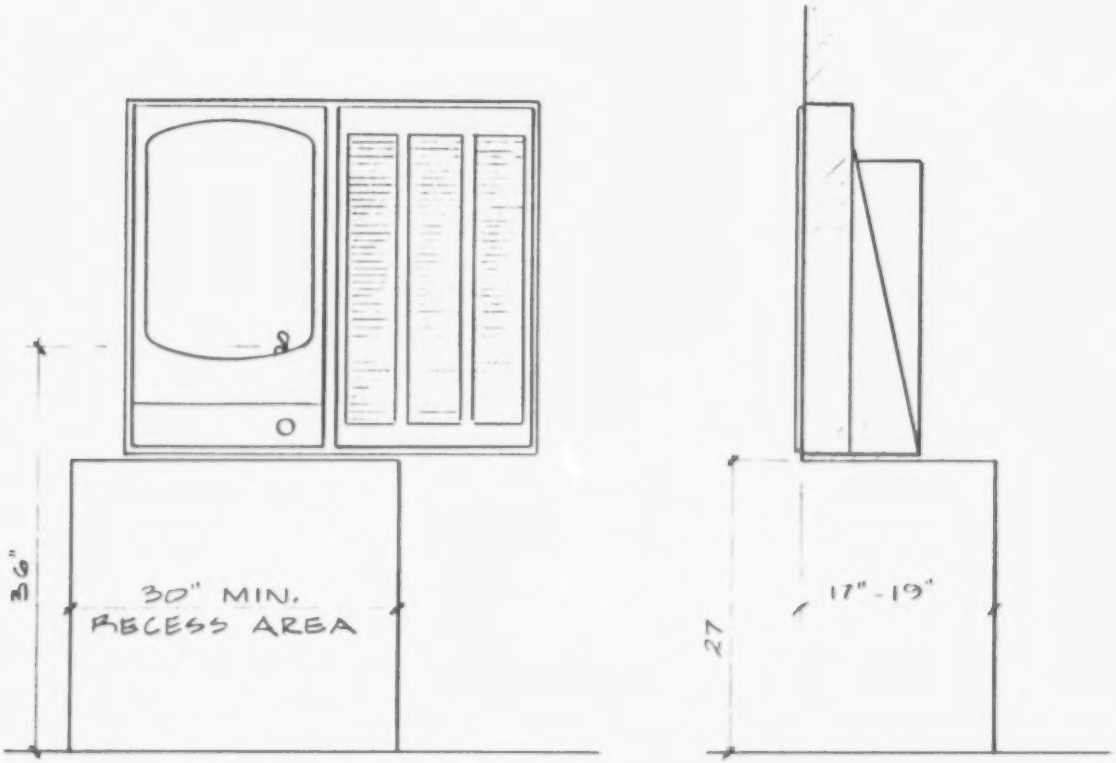
Figure 6-3. Elevation and Section Showing Mounting Heights



Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 6-4. Floor Space Required for Recessed Fountain Unit



Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

In addition, at least one public telephone per floor shall meet the requirements for a forward reach telephone. The one exception to this requirement is in the case of an exterior installation: if dial-tone-first service is available, then a side reach exterior telephone may be installed instead of the required forward reach telephone.

For all telephones required to be accessible:

- ☑ Telephone shall have volume controls, and be hearing aid compatible and capable of a minimum of 12 dba and a maximum of 18 dba above normal.
- ☑ A clear floor or ground area of at least 30 inches by 48 inches shall be provided.
- ☑ If a forward reach telephone, the highest operable part shall be 48 inches AFF.
- ☑ If side reach, the highest operable part shall be 54 inches AFF.
- ☑ Telephones and their mounting posts shall comply with protruding object criteria.
- ☑ Accessible telephones shall have push button controls where available.
- ☑ Telephone books shall be located within ADAAG reach ranges.
- ☑ The cord from the telephone to the handset shall be at least 29 inches long.

Text Telephones or TDDs

In new construction:

- ☑ If a total of four or more public pay telephones (both interior and exterior) are provided at a site, and at least one is an interior phone, then at least one interior public text phone shall be provided.
- ☑ If an interior public pay phone is provided in a stadium or arena, convention center, in a hotel with a convention center or in a covered mall, then at least one interior public text telephone shall be provided in the facility.
- ☑ If a public pay telephone is provided adjacent to a hospital emergency, waiting, or recovery room, one public text telephone shall be provided.

In alterations or additions:

- ☑ If an alteration to an existing building with less than four exterior or interior public pay telephones increases the number to four or more telephones (one being located inside), a text telephone shall be provided.
- ☑ If alterations to one or more interior or exterior telephones occurs in an existing facility with four or more public pay telephones (one being located inside), then a public text telephone shall be provided.

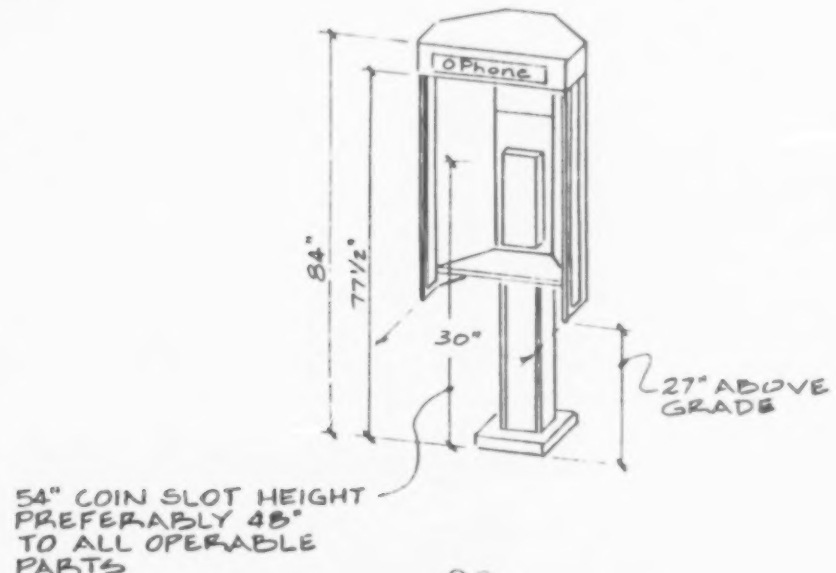
Construction Specifications

The following specifications are not all-inclusive but represent those areas that should be included when writing specifications for drinking fountains.

Height. The height of the top side of the basin edge shall be set so that a spout outlet height of 36 inches is provided.

Water Controls. Blade type handles, mounted horizontally on each side of the fountain, shall be set so that they are pointing toward the rear of the fountain. Protruding push buttons or push plates may also be used, and shall be mounted on the front or side surfaces of the fountain. Sensing devices that automatically turn water on when a person is detected and off when the person leaves are also acceptable.

Figure 6-5. Typical Telephone Standard Detail



Chapter 7

Special Spaces and Equipment

Although criteria for special spaces and equipment are not specified in the ANSI standard, ADAAG does address some of these spaces found on today's campus. In addition, in this chapter some basic concepts of movement and space requirements have been applied to these spaces so that they too will be accessible. The following categories of special spaces are addressed here (those areas indicated with an asterisk are covered by ADAAG):

- Areas of assembly.*
- Dormitories and kitchens.
- Dining halls and cafeterias.*
- Libraries.*
- Physical education facilities.
- Laboratories and classrooms.*
- Postal facilities.*
- Mercantile establishments.*
- Health care facilities.*
- Signage.*
- Alarms.
- Controls and operating mechanisms.*

Because these areas represent a major part of academic life, they are also required to be accessible. It is important to remember, however, that not all existing spaces or facilities are required to meet campus accessibility. If a particular room or area is required, it should meet minimum criteria under each section and the general criteria set forth in the introduction to this book.

Areas of Assembly

Assembly areas—such as performing arts theaters, spectator areas in physical education facilities, lecture halls, and auditoriums—should provide spaces for people who use wheelchairs. The following chart indicates the minimum provisions. If the campus has an existing population need for a greater amount of space, that number should be used.

Seating Capacity	*Required Wheelchair Spaces*
4-25	1
26-50	2
51-300	4
301-500	6
501+	6, plus 1 for each additional 100

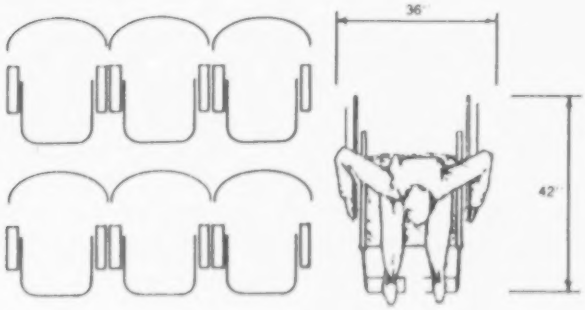
In addition, 1 percent (but not less than one) of all fixed seats shall be aisle seats with no armrests on the aisle side, or with removable or folding armrests on the aisle side. Each such seat shall be identified by a sign or marker. Signage notifying patrons of the availability of such seats shall be posted at the ticket office.

Wheelchair spaces should be dispersed throughout the assembly space, unless in alterations this is technically infeasible.

Any assembly area that is to be considered accessible should meet the following minimum criteria:

- ☑ Door(s) to the assembly space must meet the minimum criteria for doors (see Chapter 3, Doors).
- ☑ Minimum number of seating spaces must meet the capacity requirements listed in the above chart.
- ☑ Wheelchair space size is a minimum 36 inches by 48 inches.
- ☑ Areas set aside for wheelchairs should not block ingress and egress of others.
- ☑ Seating area must be level.

Figure 7-1. Accessible Wheelchair Space



Assembly spaces require assistive listening devices if

- Audible communications are integral to the use of the assembly space (e.g., concert and lecture halls, playhouses and movie theaters, meeting rooms, etc.).
- It accommodates at least 50 persons, or if it has audio amplification systems.
- It has fixed seating.

Dormitories and Kitchens

Sleep/study areas obviously are important places for students, since they spend a great deal of time there. It is critical that these areas be especially well planned for disabled students.

Disabled student should be afforded the same opportunities for housing that are provided to others. This does not mean that every residence hall room must be accessible; but a reasonable selection of living arrangements must be available to students with disabilities. A varied selection of housing should be provided to avoid creating a "ghetto" for disabled people. This can be accomplished in phases as the student population increases.

When considering the choice of housing, care should be taken that a physically disabled student is not assigned a room that requires traveling long distances to classrooms and other campus facilities, or space that necessitates crossing hazardous areas of vehicular traffic, railroad tracks, or areas of freight delivery.

A campus need not lose beds when a double room is made accessible. If the modified room does not allow for two single beds, a bunk bed arrangement can be used, with the disabled student assigned the lower bunk.

The minimum number of beds that should be made accessible is based upon the peak need experienced over the last few years and/or at least two bedrooms in the following types of living styles: male, female, and coed (if available to nondisabled students).

Note: The above minimum requirements as to the number of beds do not mean that if a campus meets this minimum it can turn away a disabled student because there are no more accessible bedrooms. The campus will have to make additional space accessible as it is needed.

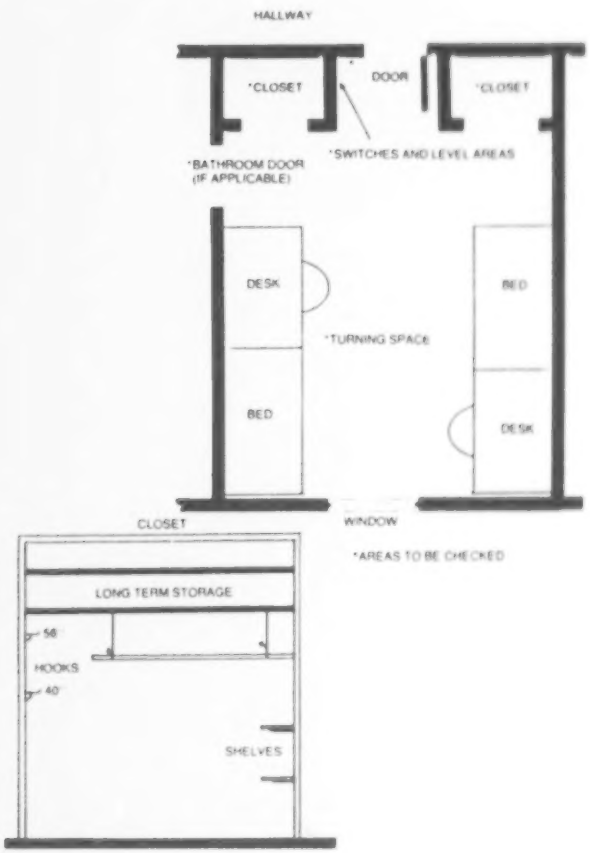
ADAAG requires accessible sleeping rooms or suites in conformance with the following table.

Total Rooms	*Required Accessible Rooms*
1-25	1
26-50	2
51-75	3
76-100	4
101-150	5
151-200	6
201-300	7
301-400	8
401-500	9
501-1,000	2% of total
1,001+	20, plus 1 for each additional 100

The following criteria shall be applied to those residence hall suites or apartment spaces chosen:

- ☑ Entrance door with at least a 32-inch clear opening with proper hardware and proper space adjacent to the handle on the pull side.
- ☑ Clear space at least 60 inches square somewhere in the room for maneuvering or turning.
- ☑ An accessible closet.
- ☑ Accessible restroom/shower-bath available.
- ☑ Doors in the room leading to bathrooms or other spaces that meet minimum door criteria.
- ☑ Light switches and controls that are within reach of a person in a wheelchair.

Figure 7-2. Accessible Sleep-Study Area



In addition to those accessible sleeping rooms and suites required above, sleeping rooms and suites that have visual alarms, notification devices, and telephones shall be provided in conformance with the following table:

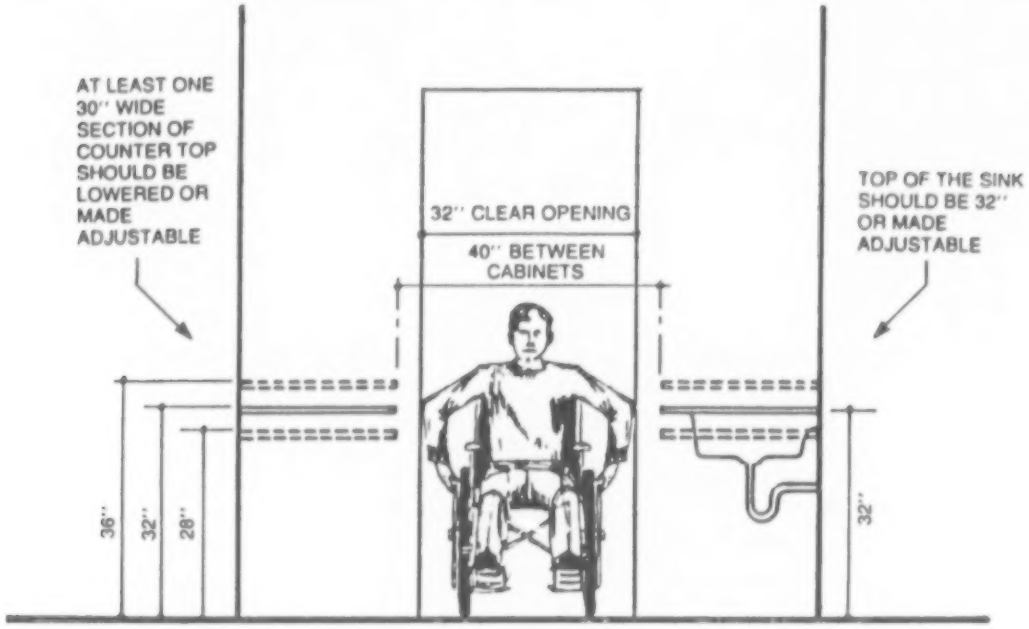
Total Elements	*Required Accessible Elements*
1-25	1
26-50	2
51-75	3
76-100	4
101-150	5
151-200	6
201-300	7
301-400	8
401-500	9
501-1,000	2% of total
1,001+	20, plus 1 for each additional 100

Since accessible units might include apartment-type living, the following basic information is provided on kitchen design for people with disabilities. As many people, both disabled and not, will be using these facilities over a period of time, consider making the 30-inch counter height for work surfaces and sink adjustable. This will allow for adaptability so that these areas may serve everyone who uses them.

The following criteria must be met:

- ☑ Doors or entrance ways to the kitchen provide a minimum 32 inch clear opening.
- ☑ Clearance between all opposing base cabinets, walls, appliances, etc., of at least 40 inches.
- ☑ At least one 30-inch-wide section of countertop shall be lowered to 32 inches above the floor (preferably this is adjustable from 28 to 36 inches).
- ☑ Top of the sink should be set at a height of 32 inches (may be adjustable from 28 to 36 inches). Faucets, drain protection, and reach should meet requirements indicated under lavatories (see Chapter 5, Restrooms and Bathing Facilities).
- ☑ Cabinet storage from 9 to 48 inches available.
- ☑ Accessible refrigerator door storage area. (Side-by-side refrigerator/freezers make both areas accessible.)
- ☑ Location of controls on ovens and ranges shall not require reaching across burners.

Figure 7-3. Accessible Kitchen Dimensions


AT LEAST ONE 30" WIDE SECTION OF COUNTER TOP SHOULD BE LOWERED OR MADE ADJUSTABLE
32" CLEAR OPENING
40" BETWEEN CABINETS
TOP OF THE SINK SHOULD BE 32" OR MADE ADJUSTABLE
36"
32"
28"
32"

Dining Halls and Cafeterias

The first consideration with existing dining halls and cafeterias should be the entrance. Since many college campuses use turnstiles to control access, it is important that alternate equal access is provided to disabled students. This might mean that the turnstile will have to be removed, or that the students be allowed to use another entrance. It does not meet the intent of ADA to require a disabled student to pass through a high-hazard area, such as a kitchen, to gain access to the dining hall.

Since any campus can provide a disabled student with table service, the counter does not necessarily have to be accessible. The tables shall be arranged so that there is access in and out of the dining hall for wheelchairs, and this is something that can be arranged easily. At least several tables shall be designed to accommodate a person seated in a wheelchair (see Figure 7-5). The following criteria must be met:

- ☑ Accessible entrance that meets all door criteria.
- ☑ Accessible food service line and counter (if cafeteria style) is available. If not, table service is provided.
- ☑ Accessible tables and paths of travel within the cafeteria or dining hall.
- ☑ All tableware, dishes, and condiment and food/beverage display shelves are accessible.

Figure 7-4. Dining Hall Entrance and Self-Serve Counter

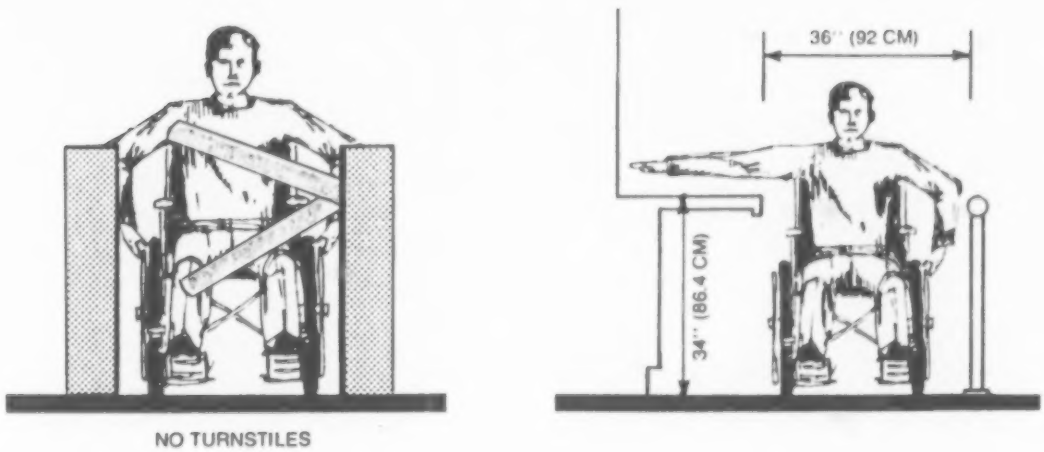
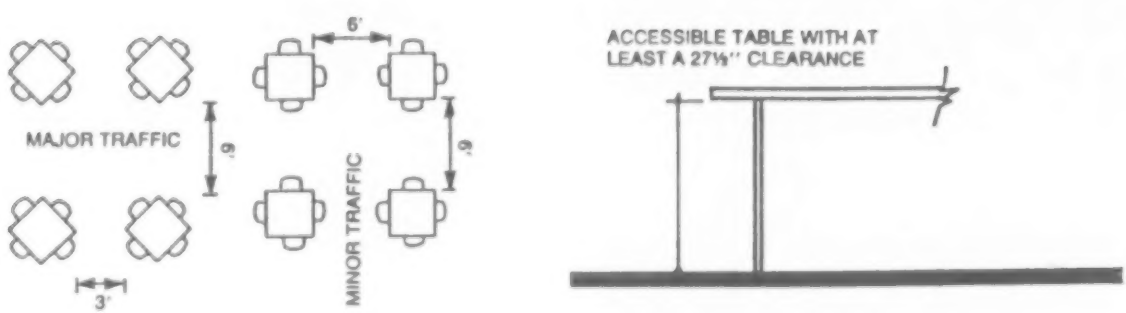


Figure 7-5. Accessible Table Areas

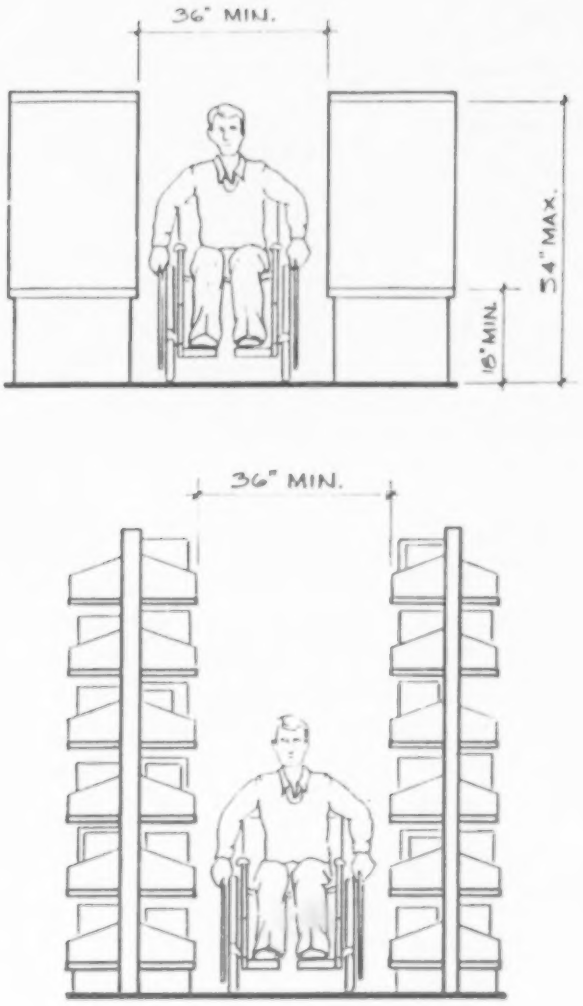


Libraries

It would be unreasonable to expect all of the resources of the library to be within the reach of a person using a wheelchair. In light of this, it is assumed that library personnel will be responsible for much of the program accessibility required in this building type. The most important criteria are as follows:

- ☑ Entrance to the library must not be through a turnstile or other device restricting entry or exit by a disabled person.
- ☑ All public areas must be accessible (reading rooms, restrooms, drinking fountains, etc.). At least 5 percent, or a minimum of one of each, of fixed seating, tables, or study carrels shall be accessible.
- ☑ A 42-inch clear space should be provided between the stacks (minimum is 36 inches).
- ☑ Equipment and general use facilities (such as microfilm readers, tape recorders, and card catalogs) must be on an accessible level of the library, and at least one of each type of equipment must be designed or positioned for accessibility.
- ☑ If study carrels are provided, at least one should be accessible (more if the current or projected disabled student population warrants).
- ☑ At least one lane at each checkout area shall be accessible.

Figure 7-6. Library Stacks



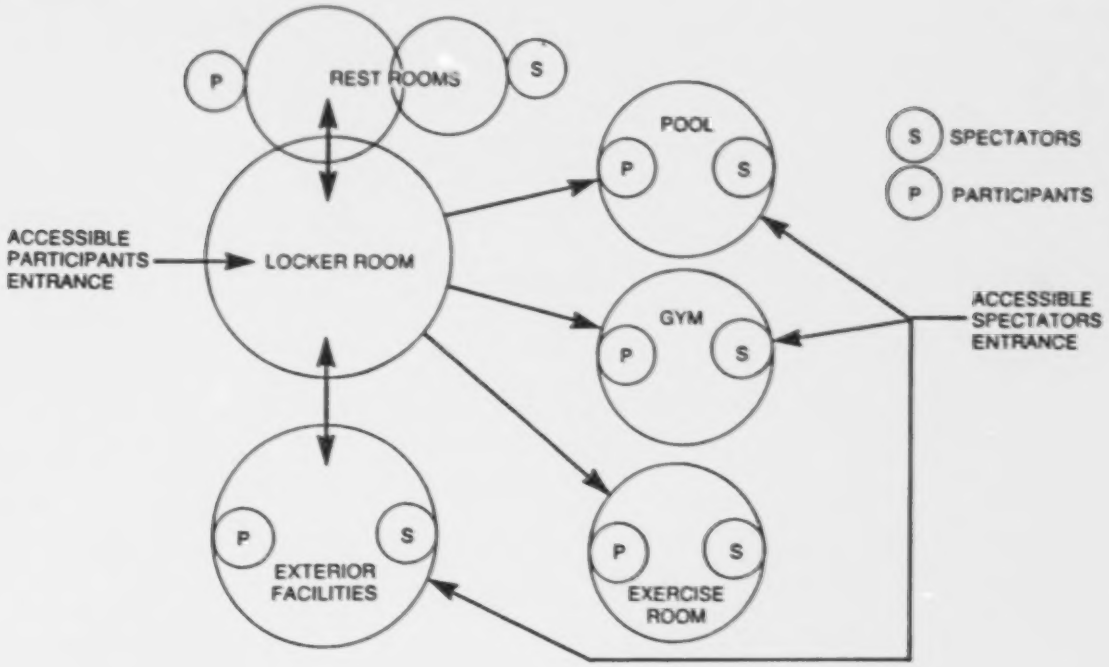
Physical Education Facilities

Physically disabled individuals, especially those in wheelchairs, frequently do not get adequate amounts of exercise in their daily activities. Therefore, it is particularly important that certain physical education programs and facilities be made available. These include the swimming pool, exercise areas, gymnasium, and locker rooms and showers.

Since disabled students both participate in and view activities that take place in physical education facilities, it is important that access is provided for both these functions. The criteria checklist should include:

- ☑ Access to pool from locker rooms and spectator areas.
- ☑ Access to exercise area from locker room.
- ☑ Accessible restrooms (in both public and locker areas, including shower).
- ☑ Access to exterior physical education facilities from locker rooms.
- ☑ Access to gym from the locker room and spectator areas.
- ☑ A lift from deck to pool, or a ramp into the pool.

Figure 7-7. Accessible Space Relation Diagram

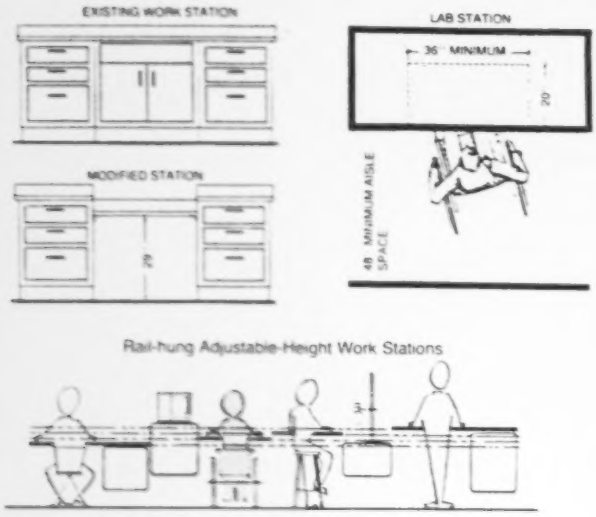


Laboratories

There are many ways that a campus can provide program accessibility to a disabled student in a laboratory setting, including the use of student partners and modifying lab stations. When surveying a laboratory, concentrate on how a disabled student would get into and around the laboratory. Then identify at least one area in the lab that has enough level floor space so that a person using a wheelchair can maneuver to an existing lab station (which can be lowered and modified if necessary), or an area where a mobile laboratory may be used. The following criteria should be taken into consideration:

- ☑ Laboratory is located on accessible level.
- ☑ Any local or state codes should be considered if they affect the physical layout of the laboratory.
- ☑ Entrance door meets minimum clear opening criteria of 32 inches.
- ☑ Emergency facilities (such as the eye wash or shower station) are accessible.
- ☑ Student in a wheelchair can get to all apparatus in the laboratory, although all items might not be within reach.
- ☑ There is a level area within the laboratory or at an existing station that could be modified to meet the requirements of a disabled student.

Figure 7-8. Laboratory Mobility



Postal Facilities

Since many campuses have postal facilities on campus, these need to be made accessible. All doors, paths of travel, and restrooms should be accessible, as well as work areas for the postal employees. The following criteria apply to postal facilities:

- ☑ All fixed partitions must withstand 250 pounds of force. Avoid designs that call for non-fixed partitions in circulation routes that are accessible.
- ☑ All stamp vending machines and other self-service devices must be accessible.
- ☑ At least 5 percent of the post office boxes shall be accessible to wheelchair users.

Mercantile Establishments

Display areas, check-out counters, and aisles shall all be accessible. The check-out counter should be wide enough and without obstructions such as turnstiles. Upper shelves of display areas need not be eliminated because they are beyond the reach of someone using a wheelchair, but assistance should be easily available. College bookstores and other mercantile establishments on campus have to be on an accessible path of travel.

Health Care Facilities

Since many campuses have infirmaries or health care facilities, care must be taken that the special features of these facilities are accessible.

- ☑ An accessible entrance should have a protective covering and incorporate a passenger loading zone that meets accessibility requirements.
- ☑ Door to patient room provides a minimum 32-inch clear opening.
- ☑ Accessible patient bedrooms shall have 1) turning space, 2) clear space of 36 inches adjacent to the bed and 42 inches at the foot of the bed, and 3) door must comply with accessibility requirements.
- ☑ Accessible patient toilet room must be accessible.

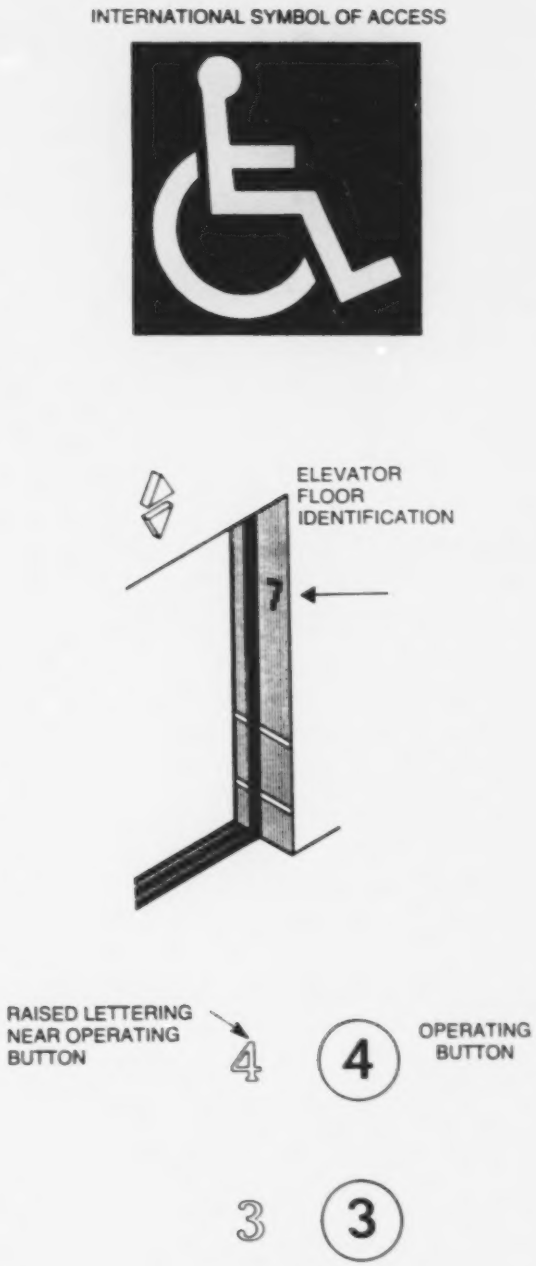
Signage

It is important to have signage in areas where there are duplicate building functions that might not be accessible. For example, if only one entrance out of four in a building is accessible, the accessible entrance shall be signed with the international symbol of access; the same is true for restrooms. ADAAG requires direction signage at non-accessible entrances. It is not necessary, however, to sign each and every accessible space in the building.

In an elevator, there are two areas in which signage is critical to a visually impaired person. First, there should be raised or engraved, and brailled numerals to the left of each button. Second, on the door jamb raised numerals that indicate the floor level should be placed 60 inches above the hall floor (see Chapter 4, Interior Circulation).

All signage should conform to ADAAG and ANSI requirements.

Figure 7-9. Signage



Alarms

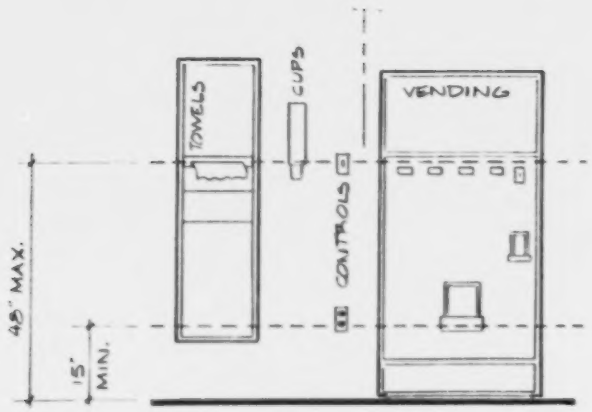
Properly placed and configured alarms are critical to people with disabilities. Specific needs vary depending upon the nature of a person's disability. There are many audiovisual alarms currently available that simultaneously serve the needs of both the hearing- and visually impaired. It is important to note, however, that people with partial hearing loss often have difficulty detecting frequencies higher than 10,000 Hz, which unfortunately is the frequency range in which many electronic alarms operate. To properly serve everyone, the frequency of an audible alarm should be reviewed before selecting the alarm. When considering the visual aspects of these combination alarms, the installed location should be considered carefully to assure the most coverage.

In dormitory rooms, where a deaf person is likely to be asleep when an alarm sounds, there are several devices that can be attached to the alarm to communicate the signal. Vibrating devices similar to beepers can be placed under a pillow, or a small fan set can be triggered to the alarm.

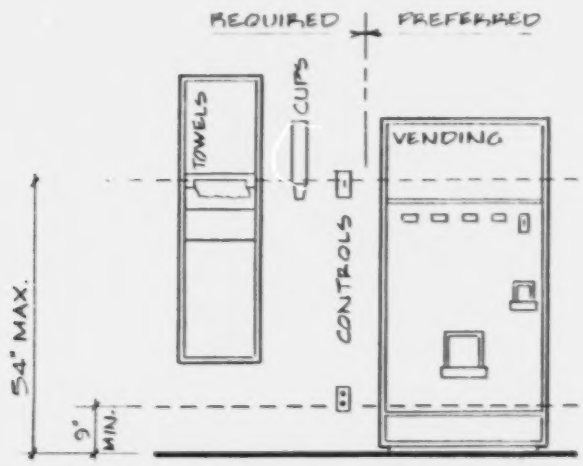
Controls and Operating Mechanisms

People with disabilities have the same needs as nondisabled people for vending machines, telephones, automatic teller machines, and other equipment, so it is important not to forget these elements when doing a survey on your campus. All built-in equipment—such as towel dispensers, paper cup dispensers, and ATMs—is covered under ADAAG, but vending machines and movable equipment are not currently covered. It is important, however, if a truly accessible campus is to be achieved, that these items also be considered.

Figure 7-10. Control Reach Limitations

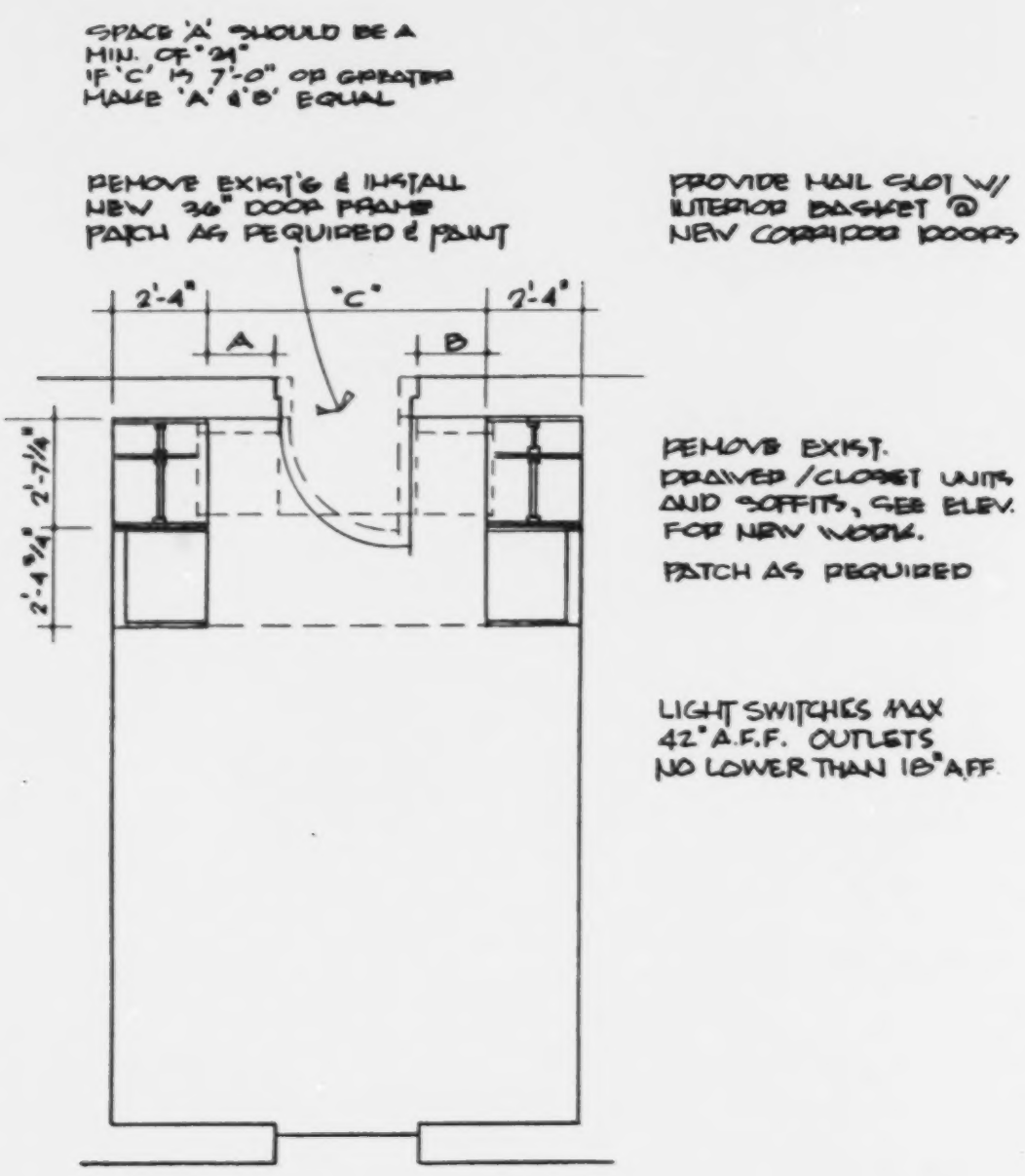


FORWARD REACH POSSIBLE



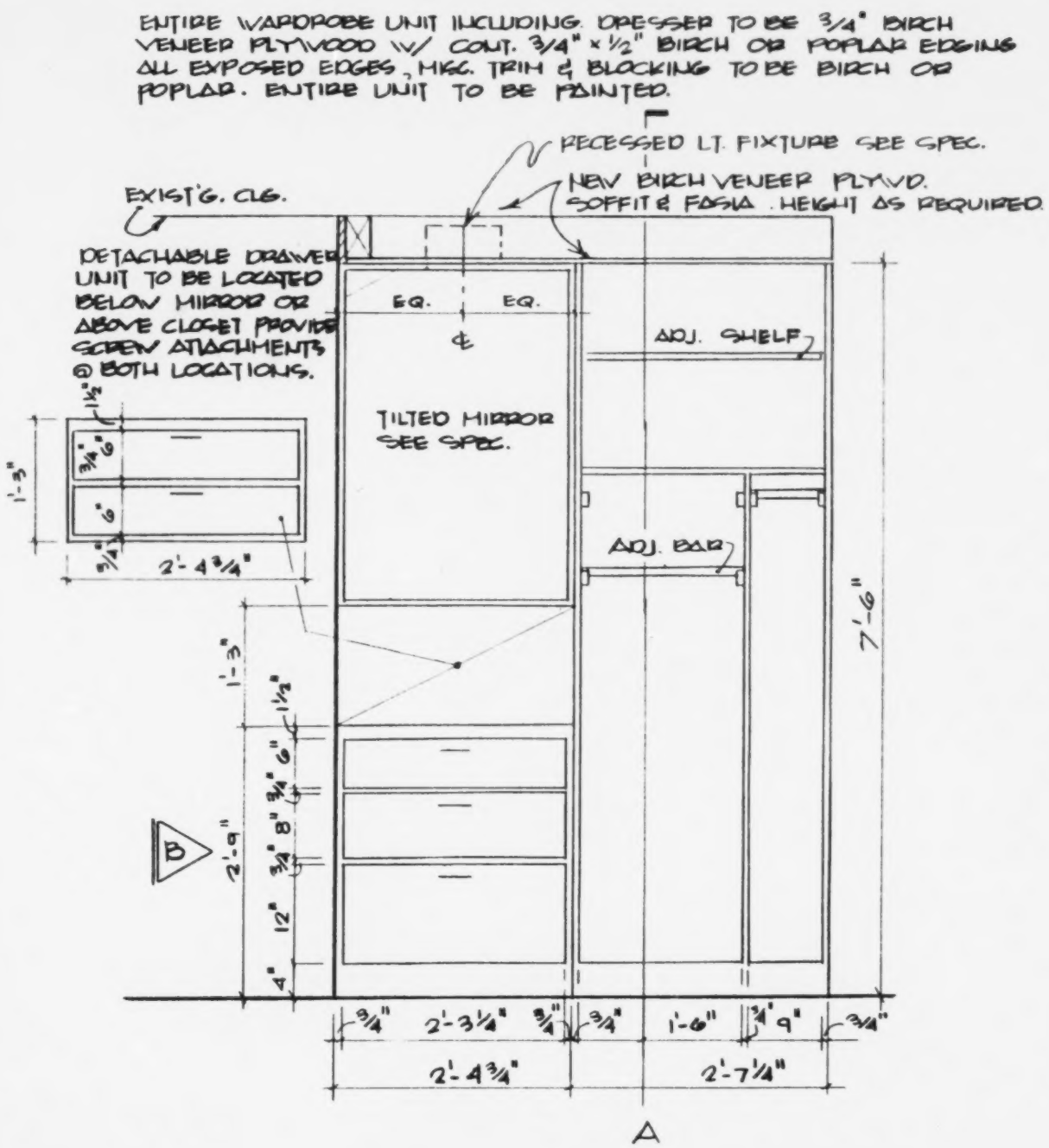
SIDE REACH POSSIBLE

Figure 7-11. Typical Sleep/Study Room for Two Persons


SPACE 'A' SHOULD BE A MIN. OF 24"
IF 'C' IS 7'-0" OR GREATER MAKE 'A' & 'B' EQUAL
REMOVE EXIST'G & INSTALL NEW 36" DOOR FRAME PATCH AS REQUIRED & PAINT
PROVIDE MAIL SLOT W/ INTERIOR BASKET @ NEW CORRIDOR DOORS
2'-4"
"C"
2'-4"
A
B
2'-7¼"
2'-4¾"
REMOVE EXIST. DRAWER/CLOSET UNITS AND SOFFITS, SEE ELEV. FOR NEW WORK.
PATCH AS REQUIRED
LIGHT SWITCHES MAX 42" A.F.F. OUTLETS NO LOWER THAN 18" A.F.F.

Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 7-12. Elevation of Closet Modification



Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

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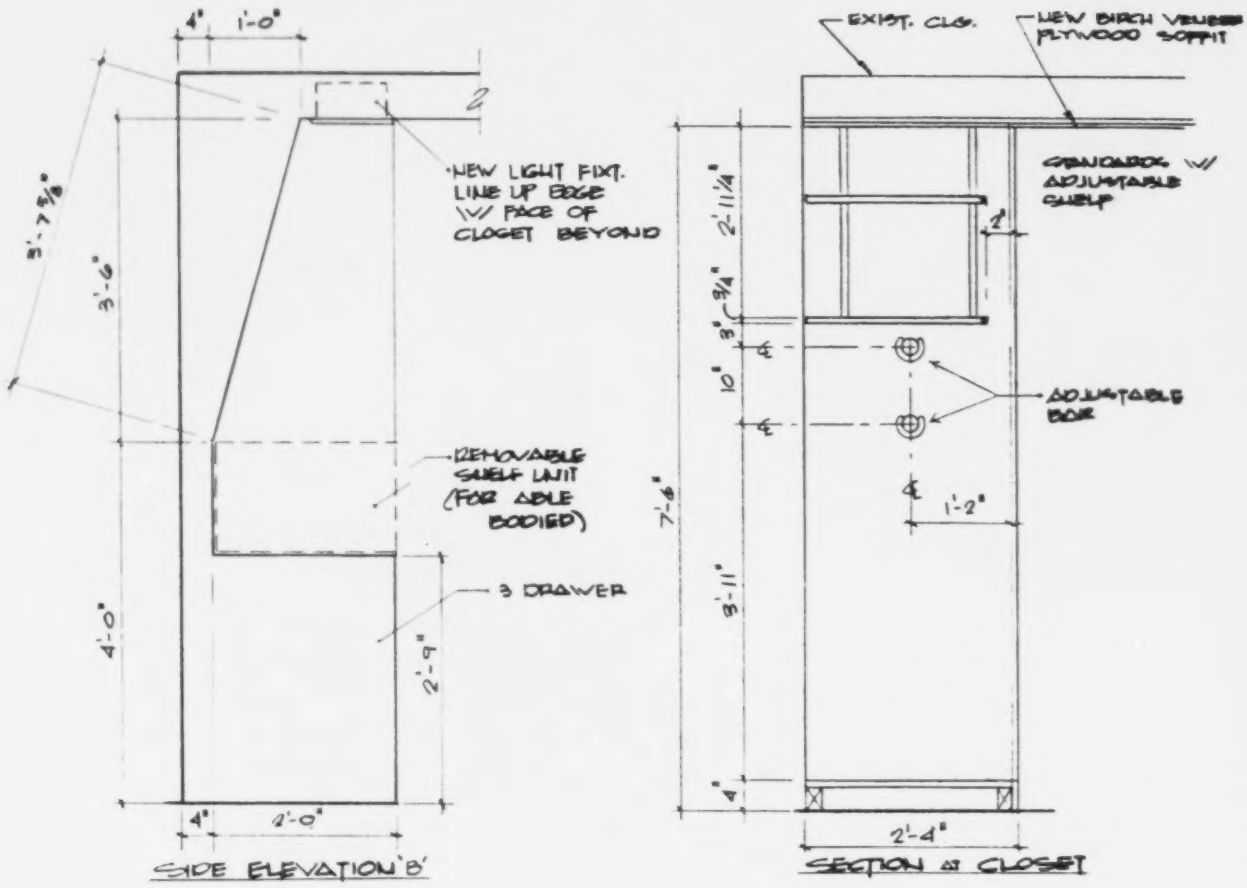
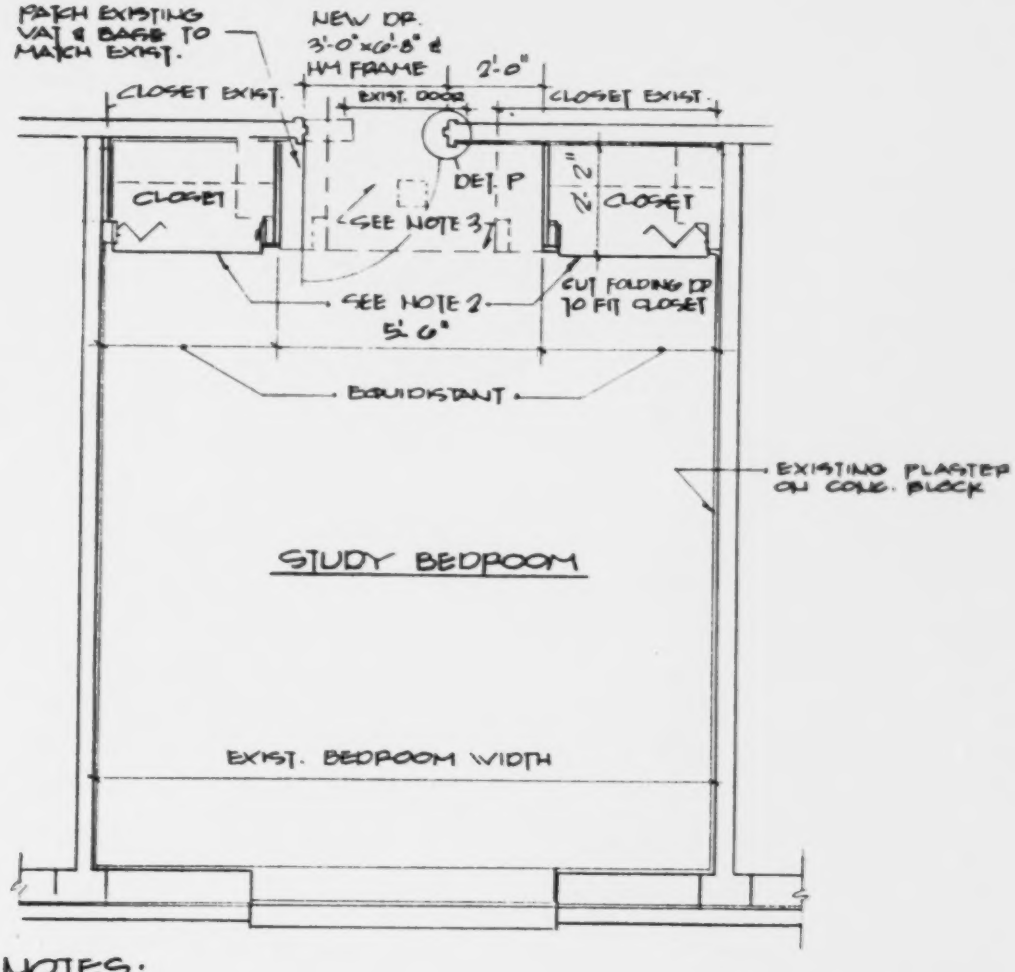
Figure 7-13. Section and Side Elevation of Wardrobe Unit



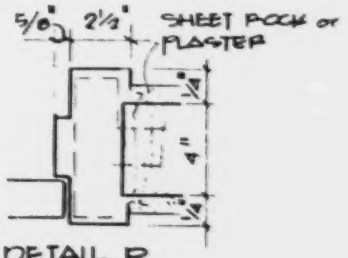
Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 7-14. Alternate Two-Person Bedroom



NOTES:

1. REMOVE EXISTING DOOR & HM FRAME, CUT OPENING IN EXISTING BLOCK WALL FOR NEW 3'-0" x 6'-8" DOOR & HM FRAME. PATCH EXISTING CONSTRUCTION.
2. REVISE CLOTHES CLOSET. REMOVE OUTSIDE JAMB OF CLOSET & REBUILD AS INDICATED, CLOSET JAMB AT WALL TO REMAIN UNDISTURBED. CUT & ALTER EXISTING MATERIAL & PROVIDE NEW MATCHING MATERIAL AS REQUIRED, PATCH EXISTING FINISHES.
3. PROVIDE NEW PLYWOOD SOFFIT & LIGHT



DETAIL P

Not to scale

Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

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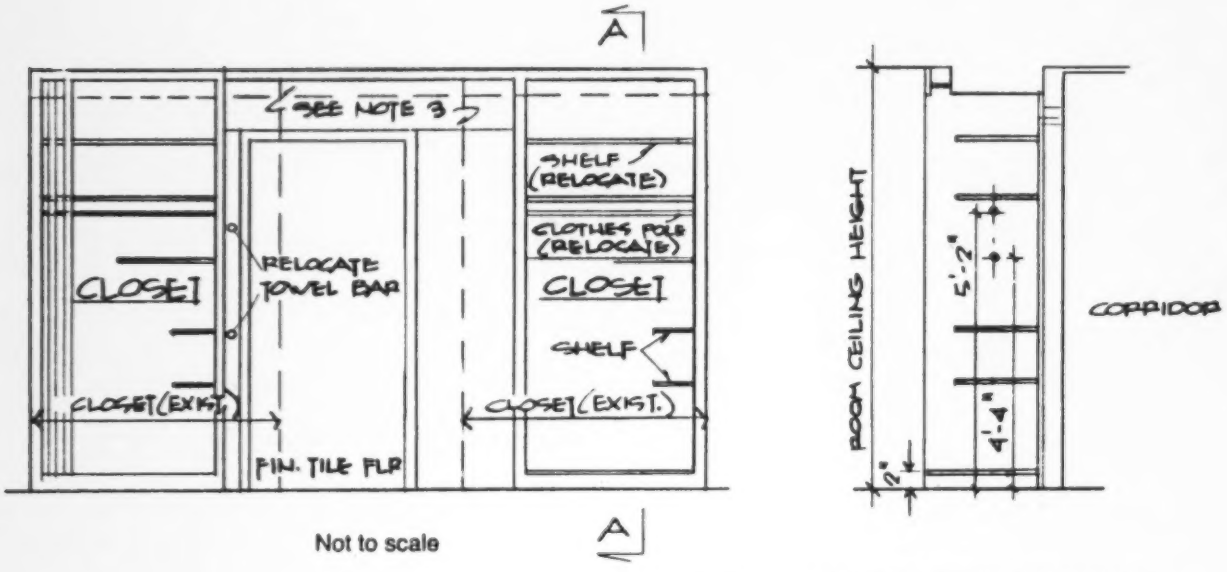
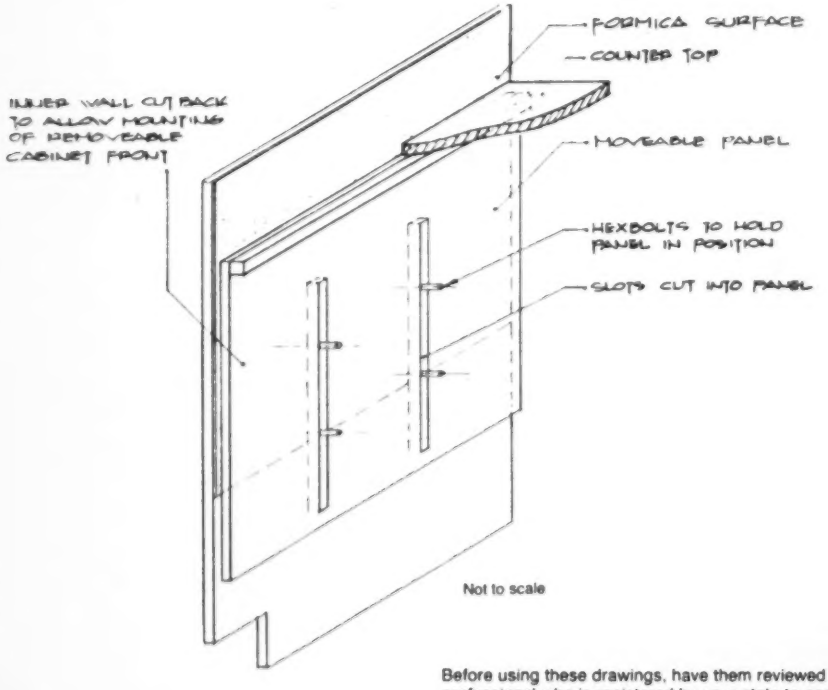
Figure 7-15. Elevation and Section of Dorm Room Entrance Modification



Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 7-16. Isometric View of Adjustable Kitchen Cabinet


FORMICA SURFACE
COUNTER TOP
INNER WALL CUT BACK TO ALLOW MOUNTING OF REMOVEABLE CABINET FRONT
MOVEABLE PANEL
HEXBOLTS TO HOLD PANEL IN POSITION
SLOTS CUT INTO PANEL
Not to scale

Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

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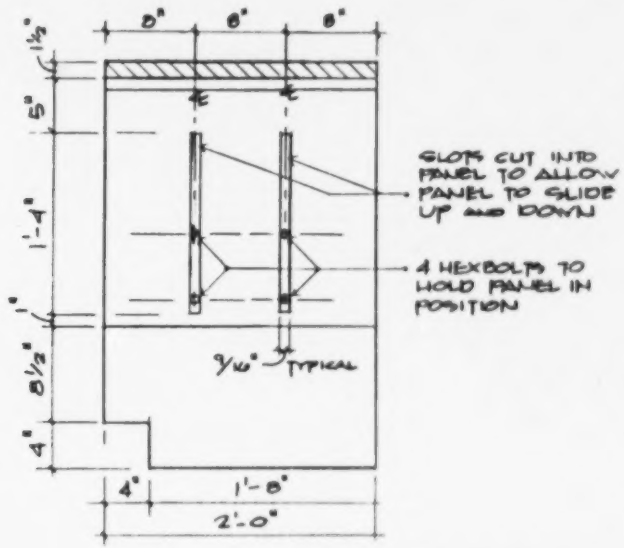
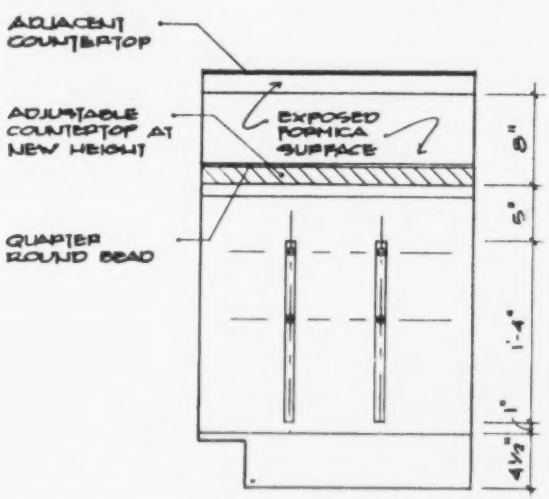
Figure 7-17. Inside View of Cabinet With Panel in Up Position



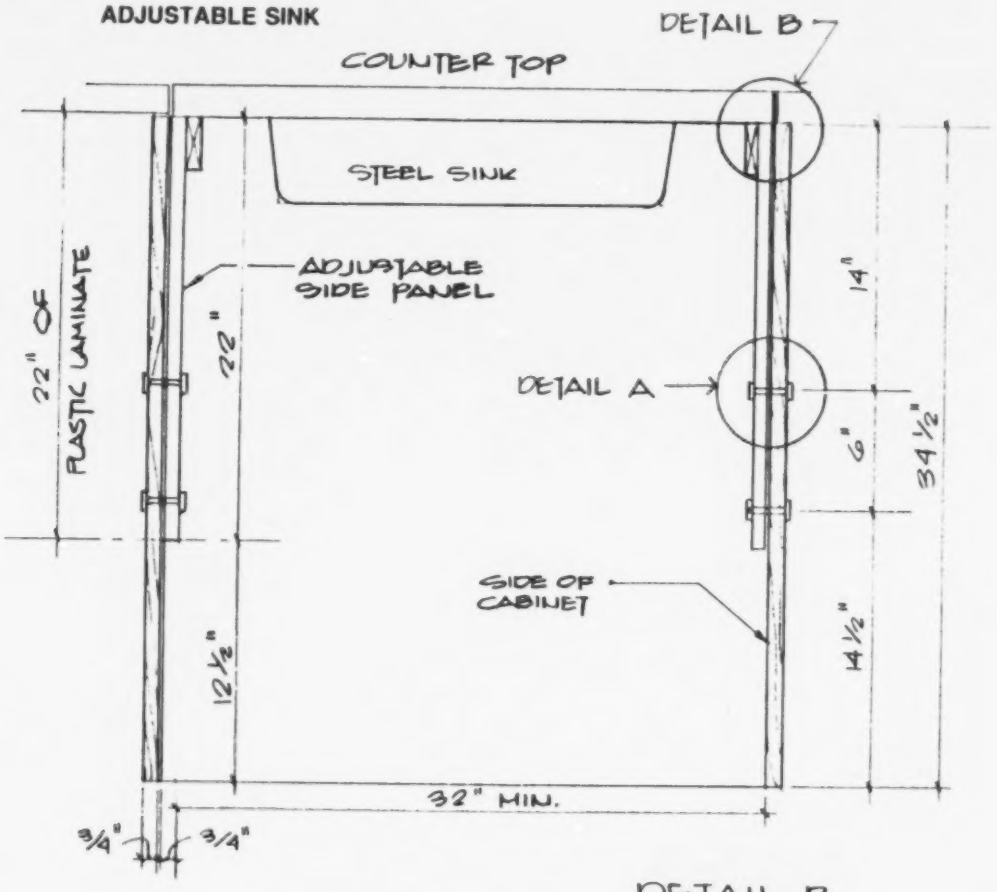
Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

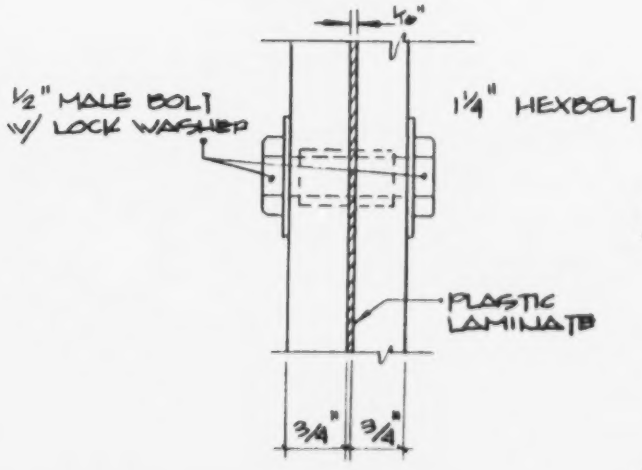
Figure 7-18. Inside View of Cabinet With Panel in Full Down Position

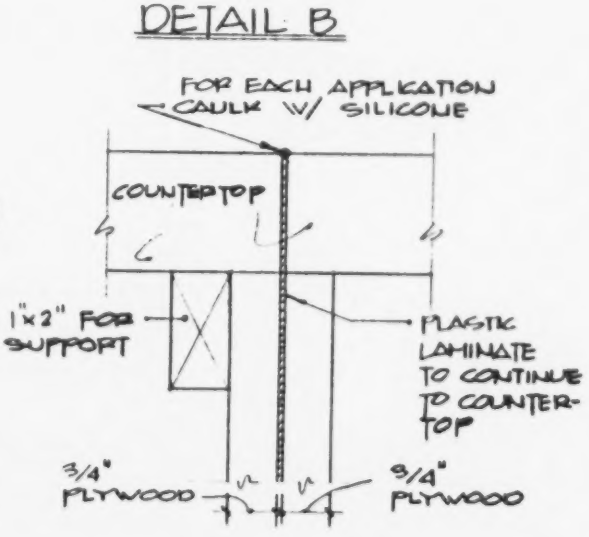


Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 7-19. Front View of Cabinet







Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

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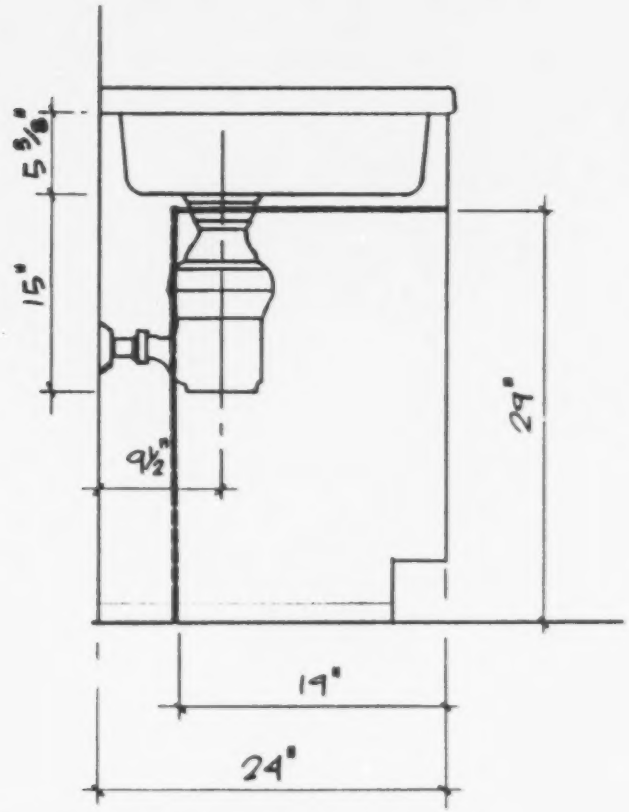
Figure 7-20. Clearances of Disposal at Sink



DETAILS ON PLUMBING AT SINK

A.) TRAP & SUPPLY LINES SHALL BE INSTALLED AT LEVEL TO ALLOW COUNTERTOP TO BE MOUNTED AT 28 INCH HEIGHT.

B) TRAP SHALL BE PULLED BACK PARALLEL TO WALL TO AVOID CONTACT WITH WHEELCHAIR USERS.

C.) ADJUSTABILITY WILL BE SUPPLIED BY INSTALLING A 4" OR 8" EXTENSION AT INSIDE OF SINK.

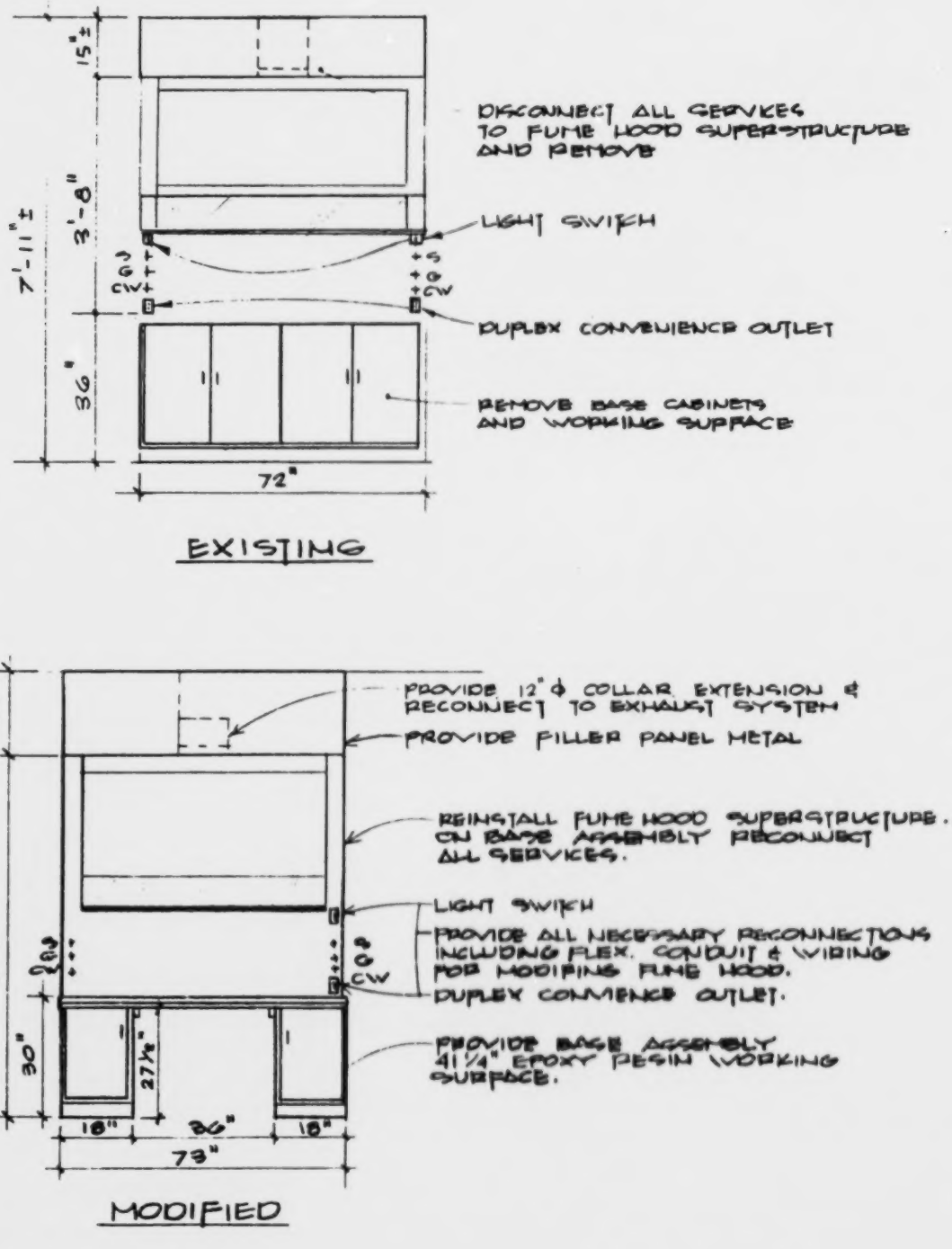
D.) SUPPLY LINES SHALL BE MOUNTED TO FIT SINK AT 28" HT., W/ FLEXIBLE HOSES TO ALLOW FOR 8" ADJUSTMENT.

E.) THE SINK SHALL BE INSTALLED IN THE CENTER OF THE COUNTERTOP. W/ THE TRAP TURNED IN THE DIRECTION THAT THE DRAIN IS OFFSET. (IN THIS CASE, LEFT.)

F.) THE DISPOSER, IF INSTALLED, WILL BE POSITIONED IN ADJACENT CABINET WITH SHALLOW BAR SINK. WASTE SHOULD TAP INTO WASTE LINE OF MAIN SINK.

Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

Figure 7-21. Modification of Fume Hood



Before using these drawings, have them reviewed by a licensed professional who is registered by your state to ensure that all local and state building codes are met.

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Construction Specifications

The following specifications are not all-inclusive but represent those areas that should be included when writing specifications for portable science stations (multi-use).

General Requirements. Stations shall be prewired and preplumbed in factory.

All mechanical/electrical service fixtures and fittings shown or called for, to be mounted on or in conjunction with portable stations and equipment, shall be supplied complete.

Portable science stations shall be designed to provide a convenient, barrier-free workstation for students who use wheelchairs.

Units shall be self-contained and portable to facilitate storage or relocation as required by curriculum requirements. Each unit shall be double-sided, one side for use in biology lab work, the other side for chemistry or physics lab activities. Controls for cold water, air, and vacuum services shall be conveniently located on both sides of table, as well as 110 V duplex electrical receptacles.

Portable science stations shall meet the needs of physically disabled persons who use wheelchairs with regard to knee clearance, forward and side reach, countertop height, location of services and controls, and microscope shelf location.

Stations shall be 60 inches wide, 30 inches deep, and 32 inches high, ± 1/2 inch.

Standard Features. Countertops shall be one-piece, chemical-resistant black fiberglass with built-in raised edge on all four sides to retain spills. Tops shall be further recessed at area of integrally molded sink. Built-in burette sockets shall allow use of optional apparatus rods.

Service cabinets shall be equipped with double doors to provide easy access to mechanical and electrical systems, which shall be prewired and preplumbed.

Biology cabinets shall consist of a pull-out shelf and a pull-out cupboard for storage of materials.

Cupboards shall be mounted on mechanical slides for smooth opening and closing, with stops provided to prevent accidental removal. A removable tote-tray shall be included and located within cupboards.

Chemistry/physics cabinets shall consist of a pull-out shelf, a 4- inch deep drawer, and a 12-inch deep pull-out cupboard for storage. Drawers and cupboards shall be mounted on full extension mechanical slides with stops provided to prevent accidental removal.

Water system shall consist of a two-gallon pressurized supply container, a 2-1/2 gallon waste container, a 1-1/2 HP pressure supply pump with pressure regulating switch, and a gooseneck faucet with a serrated tip. Water flow shall be activated by push-button controlled solenoid valve.

Electrical systems shall be completely prewired and protected by a ground fault interrupter including a control panel on each side of the table apron with control switches for water and for optional air and vacuum systems. Duplex 110 V receptacles shall be located on each side of the table apron. The entire system shall be energized by a 10-foot electrical cord fitted with a standard grounding three-prong plug for connection to the building service outlet.

Note: The above specification is for the basic unit only. Specific equipment for special use will have to be included in the overall specification for this piece of equipment.

Emergency Shower Units and Eye Wash Stations. The existing emergency shower units and eye wash stations shall be changed to accommodate disabled people in accordance with applicable codes. Extend and reroute the chain of the emergency shower to the level and area for ready operation by people with disabilities, if required, and provide with blade handles, if required.

The existing eye wash stations shall be changed to the elevation required for accessibility.

Chapter 8

Facilities Inventory and Evaluation

Although many college campuses have been working toward the goal of full program accessibility for a number of years, the enactment of Section 504 regulations and now ADA requirements have placed previously voluntary activities into the realm of mandated actions.

The ADA regulations require structural changes in existing facilities when these can be reasonably accomplished. When analyzing what needs to be done, close coordination between academic and physical plant departments is necessary to ensure the selection of efficient and cost effective solutions.

While academic planners may assist with establishing priorities for modifications, the facilities manager should be able to identify the facilities that are usable with little or no change, those that can be modified quickly using in-house personnel, and those where extensive work will be required. In addition, the facilities manager's knowledge of codes and standards is invaluable when weighing alternatives.

How To Recognize a Barrier

Barriers in the built environment are generally invisible to the nondisabled person. Architectural tradition has accustomed people to monumental steps at entrances to public buildings, small vestibules and narrow stalls in public restrooms, and sunken conversation pits in hotel lobbies. Familiarity has led to unquestioning acceptance of a built environment that requires the user to adapt to its configuration.

Inspecting a facility from the perspective of its usability by people with mobility or manual impairments or with sight or hearing disabilities will reveal those aspects that may constitute a barrier. While other chapters of this publication provide insight into design criteria for accessibility, this chapter provides some of the tools necessary to meet ADAAG and identify and document barriers in existing facilities, as well as potential barriers when reviewing a set of construction drawings.

Surveying for Barriers

While professional consulting firms can be commissioned to conduct barrier surveys, a more cost-effective approach is to use staff members, student workers, or a combination of both. Some campuses have conducted surveys entirely with volunteers from service groups, fraternities and sororities, or consumer organizations.

Whatever the source of personnel, the survey itself is best conducted by teams of at least two people, one to measure and one to record. Team members need to be prepared for their assignments through training sessions that provide the background knowledge needed to perform an effective survey.

It is immensely helpful to recruit individuals with disabilities in the survey effort, and to try to find people who represent a cross section of disability types. Having a disabled person on each survey team helps to ensure that subtle but important factors are not overlooked in assessing the usability of a given facility. Disabled students, staff, and faculty members on campus are likely candidates. Local organizations of disabled people, or local organizations that serve them, are also recommended as a source of knowledgeable assistance. A number of national organizations have local chapters that may be available to help with campus projects (see Chapter 10, Additional Resources).

Twenty to forty minutes should be allotted to survey a typical commercial building, but detailed surveys of larger educational buildings will require more time. One university allows four hours per building with a team of two surveyors.

Conducting the Survey

To get the survey under way, an orientation and technical training session should be conducted for all team members. Sources of assistance in developing an effec-

tive orientation/training session include campus and community organizations of disabled people and voluntary or professional service organizations.

Additional assistance may be available from state departments of rehabilitation and local private rehabilitation agencies.

The survey instrument to be used by the teams may be developed by the institution, tailored to the particular characteristics of the campus. In actual practice, however, most colleges and universities will be able to use the survey instrument provided in this chapter. Regardless of which method you choose, the ADAAG should be close at hand while you perform the survey. This document may be obtained from the Office on the Americans with Disabilities Act, Civil Rights Division, U.S. Department of Justice, P.O. Box 66118, Washington, D.C. 20035-6118. It is also available from the Architectural and Transportation Barriers Compliance Board, 1111 18th Street, N.W., Suite 501, Washington, D.C. 20036-3894.

Useful Tools

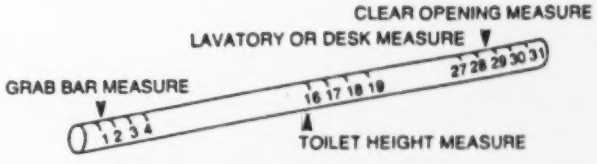
In addition to the survey form, pads for note taking, and a tape measure, team members should be equipped with the following:

- Line drawings of floor plans of the buildings being surveyed, on which barriers can be recorded as they are located.
- A camera to photograph barriers wherever they are found in the course of the survey.
- Special tools:
  - — Clear opening measure
  - — Ramp slope check
  - — Door opening pressure measure.

Clear Opening Measure

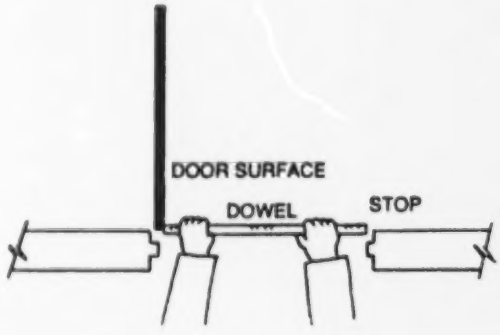
Cut a 3/4-inch dowel to 32 inches in length. With a finepoint felt tip pen, mark the dowel as shown in Figure 8-1. You now have a useful tool to measure the clear width of a door opening, the height of a toilet seat, the distance of a grab bar from its supporting wall, or the height from the floor to the underside of a desk, lavatory, or work table.

Figure 8-1. Measuring Tool



To measure the clear opening of a door, the dowel should be placed horizontally in the opening with the door opened to 90° (see Figure 8-2). Panic opening devices and other operating hardware should not interfere with this clear opening measure, unless the device projects into the opening below 32 inches. Surface-mounted vertical rod devices, even though they project into this area, are located at the end of the door and should not present a problem to access when the door is in its open position, as long as the door can open to approximately 90°.

Figure 8-2. Measuring Clear Opening of a Door



If the dowel fits through the clear opening, the door meets the minimum requirements. If it does not fit, you can measure the clear opening by putting the zero end of the dowel at the door surface with the other end as close as possible to the door stop and jamb (see Figure 8-3). The dimension from the door face to the stop can be read by placing a straight edge as shown in Figure 8-4.

Figure 8-3. Measuring Clear Opening if Dowel Does Not Fit

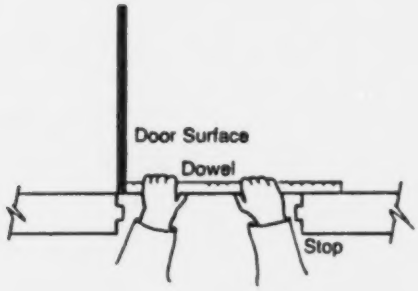


Figure 8-4. Measuring From Door Face to the Stop

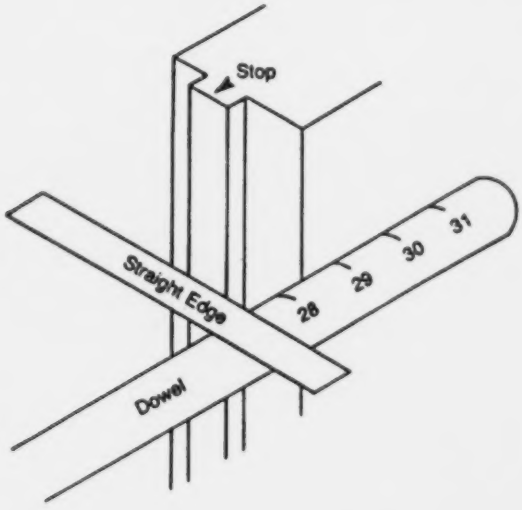
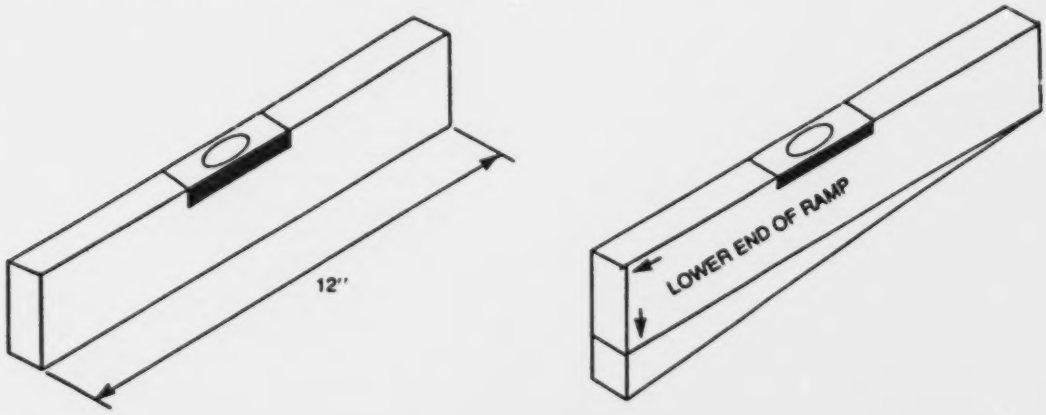


Figure 8-5. Bubble Level and Wood Piece



Ramp Slope Check

To check a ramp's slope, prepare the following items:

- Twelve-inch-long bubble level.
- Piece of wood 12 inches long by 1 inch high and the width of the bubble level.
- Glue to join the level and the wood.

Cut the piece of wood so that a 1:12 slope is formed. Glue the level to the 12-inch side of the block of wood. This device can now be used to determine whether an existing ramp meets or exceeds the 1:12 slope requirements.

Door Opening Pressure Measure

This device measures the closing forces created by the door closer foot. Obtain a spring scale measuring from 0 to at least 10 pounds, and attach it to the handle of the door. Open the door to approximately 1 foot, let it come to rest, and read the closing force in pounds.

The closing force is approximately 60 percent of the force needed to open the door, so you must multiply the scale reading by 1.67 to obtain the opening force:

Closing force x 1.67 = opening force.

Unless otherwise specified by applicable fire safety codes, an exterior door in the path of travel considered accessible shall not exceed 8 pounds opening force; for interior doors, 5 pounds.

The 60 percent efficiency factor is based on ANSI A156.4, which requires that a door closer must be at least 60 percent efficient.

Figure 8-6. Checking Ramps for Slope Requirement

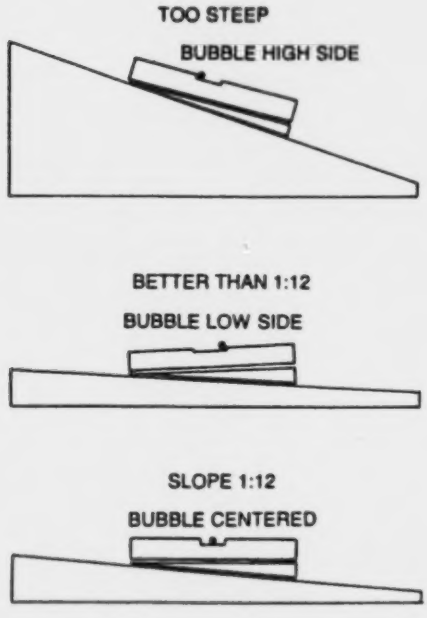
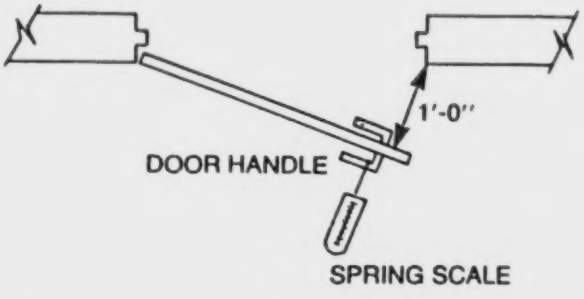


Figure 8-7. Door Opening Pressure Measure



Evaluating the Results

Information collected by the facility survey should be evaluated by individuals thoroughly trained in barrier-free design concerns. This skill is particularly essential when applying accessibility criteria to existing facilities. The depth and subtlety of detail that is involved in many barrier problems requires an understanding of functional requirements and relationships between users and the environment.

Facilities Survey

The following survey instrument reflects the minimum requirements as set forth in ADAAG. It does not attempt to provide an exhaustive checklist covering every technical dimension and the details covered in ADAAG. It does attempt to provide the user with a clear methodology to determine if a new, altered, or historic site or facility is usable by people with disabilities, and if the ADAAG minimum requirements in this regard are met. Specific information about precise details and dimensions can be reviewed using the checklists at the beginning of each chapter in this book and by reviewing the technical provisions of ADAAG.

This checklist can be applied during the design, construction, and alteration of facilities. To facilitate use, a copy of ADAAG should also be available when undertaking the survey.

If specific design criteria are required to make certain that a particular area is in compliance, a reference to the appropriate chapter in this book is included. Checking yes indicates compliance with ADAAG; if you cannot answer yes, then some modification work or other action is required.

ACCESSIBLE SITES AND EXTERIOR FACILITIES

Site

(See Chapter 1)

[Y] [N] Is at least one accessible route available to an accessible building entrance from public transportation stops, accessible parking spaces (passenger loading zones if provided), and public streets or sidewalks?

[Y] [N] Does at least one accessible route connect accessible buildings, facilities, elements, and spaces that are on the same site?

[Y] [N] Are there any objects that protrude from surfaces or posts into circulation paths?

[Y] [N] Are ground surfaces along accessible routes and in accessible spaces stable, firm, and slip-resistant?

Parking

(See Chapter 1)

[Y] [N] If parking spaces are provided for self-parking by employees, visitors, or both, are they provided in sufficient numbers?

[Y] [N] Can you accommodate accessible van parking?

[Y] [N] If passenger loading zones are provided, is at least one of them accessible?

[Y] [N] If this facility provides medical care and other services for persons with mobility impairments (outpatient units and facilities, units and facilities that specialize in treatment or services for persons with mobility impairments, and valet parking), have you provided the higher percentage of accessible parking spaces?

Other Site Features

(See Chapters 1 and 5)

[Y] [N] Do exterior toilet facilities (if provided) on a site meet accessibility requirements?

[Y] [N] Do public or common use bathing facilities (if provided) on a site meet accessibility requirements?

Building and Directional Signage

(See Chapter 7)

[Y] [N] Do signs that designate permanent rooms and spaces comply with ADAAG?

[Y] [N] Do signs that provide direction to, or information about, functional spaces of the building comply with ADAAG?

Are the following elements and spaces of accessible facilities identified by the international symbol of accessibility:

[Y] [N] Parking spaces designated as reserved for individuals with disabilities?

[Y] [N] Accessible passenger loading zones?

[Y] [N] Accessible entrances when not all are accessible (inaccessible entrances shall have directional signage to indicate the route to the nearest accessible entrance)?

[Y] [N] Accessible toilet and bathing facilities when not all are accessible?

NEW CONSTRUCTION

Does the facility meet the following minimum requirements?

(See Chapters 2, 3, and 4)

[Y] [N] Does at least one accessible route connect the accessible building or facility entrances with all accessible spaces and elements within the building or facility?

[Y] [N] Do all objects that overhang or protrude into circulation paths meet ADAAG requirements?

[Y] [N] Do all ground and floor surfaces along accessible routes and in accessible rooms and spaces meet ADAAG?

[Y] [N] Do all interior and exterior stairs that connect levels not connected by an elevator, ramp, or other accessible means of vertical access, meet ADAAG?

[Y] [N] Does at least one passenger elevator serve each level, including mezzanines, in all multi-story buildings and facilities, unless exempted?

Entrances and Doors

(See Chapters 2, 3, and 4)

[Y] [N] Does one door meet accessibility requirements at each accessible entrance to a building or facility?

[Y] [N] Does one door within a building or facility, at each accessible space, meet ADAAG?

[Y] [N] Does each door that is an element of an accessible route comply with ADAAG?

[Y] [N] Accessible routes serving any accessible space or element shall also serve as a means of egress for emergencies or connect to an accessible area of rescue assistance. Do the doors leading to the accessible area of rescue assistance meet ADAAG?

[Y] [N] Do at least 50 percent of all public entrances (excluding those from an enclosed parking garage) provide accessibility?

[Y] [N] If direct access is provided for pedestrians from an enclosed parking garage to the building, is at least one direct entrance from the garage to the building accessible?

[Y] [N] If access is provided for pedestrians from a pedestrian tunnel or elevated walkway, is one entrance to the building from each tunnel or walkway accessible?

[Y] [N] If the only entrance to a building, or tenancy in a facility, is a service entrance, is that entrance accessible?

[Y] [N] Do all entrances that are not accessible have directional signage indicating the location of the nearest accessible entrance?

Drinking Fountains
(See Chapter 6)

[Y] [N] Where only one drinking fountain is provided on a floor, is there a "hi-lo" drinking fountain or two separate fountains at different levels?

[Y] [N] If there is more than one drinking fountain or water cooler provided on a floor, are 50 percent of them accessible?

Toilet Facilities
(See Chapter 5)

[Y] [N] Does each public and common use toilet room meet accessibility requirements?

[Y] [N] Are private toilet rooms that are not required to be accessible, adaptable for future use?

[Y] [N] If bathing rooms are provided, does each public and common use bathroom meet accessibility guidelines?

[Y] [N] Are the accessible toilet rooms and bathing facilities on an accessible route?

Storage, Shelving, and Display Units

[Y] [N] If fixed or built-in storage facilities such as cabinets, shelves, closets, and drawers are provided in accessible spaces, does at least one of each type provided contain storage space that meets accessibility guidelines?

Controls and Operating Mechanisms

[Y] [N] Do controls and operating mechanisms in accessible spaces, along accessible routes, or as parts of accessible elements (for example, light switches and dispenser controls) meet accessibility guidelines?

[Y] [N] Are detectable warnings provided at dangerous or hazardous locations?

Building Signage

[Y] [N] Do the signs that designate permanent rooms and spaces meet accessibility guidelines?

[Y] [N] Do other signs that provide direction to or information about functional spaces of the building meet accessibility guidelines?

Public Telephones

[Y] [N] If public pay telephones, public closed circuit telephones, or other public telephones are provided, are enough provided and do they meet accessibility guidelines?

Fixed or Built-in Seating or Tables

[Y] [N] Do at least 5 percent, but not less than one, of fixed or built-in seating or tables (such as study carrels and student laboratory stations) provided in accessible public or common use areas meet accessibility guidelines?

[Y] [N] Does an accessible route lead to and through such fixed or built-in seating areas or tables?

Assembly Areas

[Y] [N] If there is a place of assembly with fixed seating, do accessible wheelchair locations meet accessibility guidelines with respect to location and numbers available?

[Y] [N] If the assembly space is required to have a permanently installed assistive listening system, does it?

[Y] [N] For other assembly areas: Does the assembly space have a permanently installed assistive listening system, or does it support a portable assistive listening system?

Automated Teller Machines

[Y] [N] If ATMs are provided, does each one meet accessibility requirements?

Dressing and Fitting Rooms

[Y] [N] If dressing and fitting rooms are provided for use by the general public, patients, customers or employees, do 5 percent (but never less than one) of the dressing rooms for each type of use, in each cluster of dressing rooms, meet accessibility requirements?

BUILDING ADDITIONS

As set forth below, additions should be checked using the criteria in ADAAG under Accessible Buildings: Alterations.

- Each addition to an existing building or facility shall be regarded as an alteration.
- Each space or element added to the existing building or facility shall comply with the applicable provisions of ADAAG (see ADAAG 4.1.1 to 4.1.3, Minimum Requirements for New Construction; applicable technical specifications in 4.2 through 4.35; and sections 5 through 10).
- Each addition that affects or could affect the usability of an area containing a primary function shall comply with ADAAG.

BUILDING ALTERATIONS

In alteration work, if compliance with ADAAG is technically infeasible, the alteration shall provide accessibility to the maximum extent feasible. Any elements or features of the building or facility that are being altered and can be made accessible shall be made accessible within the scope of the alteration.

Following are some special conditions and technical considerations when making alterations to existing facilities.

Telephones

[Y] [N] If after the alteration you have four or more exterior or interior public pay telephones, has at least one accessible interior public text telephone been provided?

New Escalator or Stair Installation

[Y] [N] Has an escalator or stair been planned or installed where none existed previously, and are (were) major structural modifications necessary for such installation?

[Y] [N] If yes, has a means of accessible vertical access been provided?

Entrances

[Y] [N] If an entrance is not required to be made accessible, but it affects or could affect the usability of or access to an area containing a primary function, has an attempt been made to ensure that the entrance provides accessibility to the maximum extent possible?

[Y] [N] If a particular modified entrance is not made accessible, is appropriate signage indicating the location of the nearest accessible entrance(s) installed at or near the inaccessible entrance?

Ramps

[Y] [N] All ramps must meet the technical criteria as set forth in this publication, but in alterations, ramps steeper than 1:12 are allowed under certain circumstances. Do all ramps meet accessibility guidelines?

Stairs

[Y] [N] Handrails are required to be extended past the top and bottom of stairs, but there are locations where it would be hazardous or infeasible to extend handrails. Have these areas been noted?

Existing Elevators

[Y] [N] Are safety door edges provided in the existing automatic elevators? (If yes, automatic door reopening devices may be omitted.)

[Y] [N] Does existing shaft configuration or technical infeasibility prohibit strict compliance with the minimum size of the elevator car?

Existing Doors

[Y] [N] If it is technically infeasible to comply with the clear opening width requirements of 32 inches for a doorway, and the door is in compliance except for up to a 5/8-inch stop on the latch side, the door may be considered accessible. Do your doors meet this?

[Y] [N] Are existing thresholds non-beveled and between 1/2 inch and 3/4 inch high? If yes, and they can be modified to have a beveled edge on each side, they may remain.

Existing Toilet Rooms

[Y] [N] Is it technically infeasible to comply with ADAAG related to toilet rooms, bathrooms, bathing facilities, and shower rooms? (If yes, you may install at least one unisex toilet/bathroom per floor, located in the same area as existing toilet facilities.)

[Y] [N] Are existing toilet or bathing facilities being altered and made accessible? (If no, signage shall be provided indicating the location of the nearest accessible toilet or bathing facility within the facility.)

Assembly Areas

[Y] [N] Is it technically infeasible to disperse accessible seating throughout an altered assembly area? (If yes, then accessible seating areas may be clustered.)

[Y] [N] Is it technically infeasible to alter all performing areas to be on an accessible route? (If yes, then at least one of each type of performing area shall be made accessible.)

Platform Wheelchair Lifts

[Y] [N] In alterations, you may use platform wheelchair lifts as part of an accessible route, as long as they meet accessibility requirements and all applicable state or local codes. Does the proposed platform lift meet these requirements?

Dressing Rooms

[Y] [N] Is it technically infeasible to provide the required number of accessible dressing rooms? (If yes, then one dressing room for each sex on each level shall be made accessible.)

HISTORIC BUILDINGS

Alternative Minimum Requirements

[Y] [N] Is there at least one accessible route from a site access point to an accessible entrance?

[Y] [N] Is at least one accessible entrance that is used by the public provided?

[Y] [N] If the entrance used by the public is not accessible, is there signage directing a disabled person to another unlocked accessible entrance?

[Y] [N] Is there at least one accessible toilet facility provided along an accessible route? (Such toilet facility may be unisex in design.)

[Y] [N] Are there accessible routes from an accessible entrance to all publicly used spaces on at least the level of the accessible entrance?

[Y] [N] Is access provided to all levels of a building or facility whenever practical?

[Y] [N] Are displays and written information, documents, etc., located where they can be seen by a seated person?

[Y] [N] Are exhibits and signage that are displayed horizontally (such as open books) no higher than 44 inches above the floor surface?

RESTAURANTS AND CAFETERIAS

Except as specified or modified in this section, restaurants and cafeterias shall comply with the general technical requirements.

[Y] [N] Are at least 5 percent, but not less than one, of the fixed tables (or a portion of the dining counter) accessible?

[Y] [N] In new construction (and where practicable in alterations), are the accessible fixed tables or counters distributed throughout the space or facility?

Counters and Bars

[Y] [N] Where food or drink is served at counters exceeding 34 inches in height for consumption by customers seated on stools or standing at the counter, is a 60-inch portion of the counter or bar lowered so that it is accessible, or is service available at accessible tables in the same area?

Alterations

[Y] [N] Can you provide the same services and decor as provided for the general public in a non-segregated accessible area? (If yes, raised and sunken areas, and all parts of outdoor seating, need not be accessible.)

Food Service Lines

[Y] [N] Does the food service line have a minimum clear width of 36 inches (to allow passage around a person using a wheelchair)?

[Y] [N] Are the tray slides mounted no higher than 34 inches above the floor?

[Y] [N] If self-service shelves are provided, are at least 50 percent of each type within accessible reach ranges?

Raised Platforms

[Y] [N] In banquet rooms or spaces where a head table or a speaker's lectern is located on a raised platform, is the platform accessible?

MEDICAL CARE FACILITIES

In *general purpose hospitals*:

[Y] [N] Are at least 10 percent of the patient bedrooms and toilets, and all public use and common use areas, designed and constructed to be accessible?

In *long-term care facilities* (nursing homes):

[Y] [N] Are at least 50 percent of patient bedrooms and toilets, and all public use and common use areas, designed and constructed to be accessible?

In hospitals and *rehabilitation facilities* (specializing in treating conditions that affect mobility, or units within either that specialize in treating conditions that affect mobility):

[Y] [N] Are all patient bedrooms and toilets, and all public and common use areas, designed and constructed to be accessible?

Entrances

[Y] [N] Is at least one accessible entrance that complies with accessibility guidelines protected from the weather by canopy or roof overhang?

[Y] [N] Does this entrance incorporate an accessible passenger loading zone?

Patient Bedrooms

Does each accessible patient bedroom have the following:

[Y] [N] An accessible door?

[Y] [N] Adequate space to provide an accessible maneuvering space? (In rooms with two beds, it is preferable that this space be located between beds.)

[Y] [N] Adequate space to provide a minimum clear floor space of 36 inches along each side of the bed, and to provide an accessible route to each side of each bed?

Patient Toilet Rooms

[Y] [N] If toilet/bath rooms are provided as a part of a patient bedroom, does each patient bedroom that is required to be accessible have an accessible toilet/bath room, and is it on an accessible route?

BUSINESS AND MERCANTILE ESTABLISHMENTS

In addition to the technical requirements of ADAAG, the design of all areas used for business transactions with the public shall comply with the following criteria.

Service Counters and Windows

In department stores and miscellaneous retail stores where counters have cash registers and are provided for sales or distribution of goods or services to the public:

[Y] [N] Does at least one of each type have a portion of the counter that is at least 36 inches in length with a maximum height of 36 inches above the finish floor?

[Y] [N] Is it on an accessible route?

At ticketing counters, teller stations in a bank, registration counters in hotels and motels, box office ticket counters, and other counters that may not have a cash register but at which goods or services are sold or distributed:

[Y] [N] Does a portion of the main counter have a section that is a maximum of 36 inches high and a minimum of 36 inches long?

[Y] [N] If no, is there an auxiliary counter with a maximum height of 36 inches in close proximity to the main counter, or equivalent facilitation?

[Y] [N] Are all accessible sales and service counters on an accessible route?

Checkout Aisles

In new construction:

[Y] [N] Is at least the minimum number of accessible checkout aisles provided?

In alterations:

[Y] [N] Is at least one checkout aisle accessible in facilities under 5,000 square feet, and at least one of each type accessible in larger facilities?

[Y] [N] Is the clear aisle width and height of the accessible checkout counter in compliance?

[Y] [N] Is the accessible checkout counter identified properly?

[Y] [N] Do all devices used to prevent the removal of shopping carts from store premises allow access or egress to people in wheelchairs?

LIBRARIES

In addition to the general technical requirements, the design of all public areas of a library shall be accessible.

Reading and Study Areas

[Y] [N] Are at least 5 percent or a minimum of one of each element of fixed seating, tables, or study carrels accessible?

[Y] [N] Do the clearances between accessible fixed tables and between study carrels meet accessible design guidelines?

Checkout Areas

[Y] [N] Is at least one lane at each checkout area in compliance with accessibility guidelines?

[Y] [N] Do traffic control or book security gates or turnstiles meet accessibility guidelines?

Card Catalogs and Magazine Displays

[Y] [N] Is minimum clear aisle space provided at card catalogs and magazine displays provided?

[Y] [N] Is a maximum reach height of 48 inches provided?

Stacks

[Y] [N] Is the minimum clear aisle width of 42 inches provided between stacks?

TRANSIENT LODGING

In addition to the general technical requirements, hotels, motels, inns, boarding houses, dormitories, resorts, and other similar places of transient lodging shall meet the following criteria.

[Y] [N] Are all public use and common use areas accessible?

(If the facility is located within a building that contains not more than five rooms for rent or hire and that is actually occupied by the proprietor of such establishment as his or her residence, the following does not apply.)

Sleeping Rooms and Suites

[Y] [N] Is the minimum number of accessible rooms available?

[Y] [N] Is the minimum number of accessible rooms for persons with hearing impairments available?

[Y] [N] Are sleeping rooms and suites required to be accessible dispersed among the various classes of sleeping accommodations available, or has equivalent facilitation been considered?

[Y] [N] In alterations, has the minimum number of the above units been made accessible?

[Y] [N] Are accessible sleeping rooms or suites on an accessible route?

[Y] [N] Is there a 36-inch clear width maneuvering space located along both sides of a bed (except where two beds are provided)?

[Y] [N] Does an accessible route connect all accessible spaces and elements, including telephones, within the unit, sleeping room, or suite?

[Y] [N] Do doors and doorways allow passage into and within all sleeping rooms and suites?

[Y] [N] Are fixed or built-in storage facilities such as cabinets, shelves, closets, and drawers provided?

[Y] [N] Are all controls in accessible units, sleeping rooms, and suites within the accessible reach limits?

[Y] [N] Are all of the following spaces, (where provided) accessible and on an accessible route: living area, dining area, and at least one sleeping area?

[Y] [N] Except where it is necessary to utilize a higher door threshold or a change in level to protect the integrity of the unit from wind/water damage, are patios, terraces, or balconies accessible?

[Y] [N] Is at least one full bathroom (i.e., one with a water closet, a lavatory, and a bathtub or shower) accessible? (If only half baths are provided, at least one must be accessible.)

[Y] [N] Are carports, garages, or parking spaces accessible and on accessible routes to the facility?

[Y] [N] Are accommodations for persons with hearing impairments provided in the accessible sleeping room or suite?

Kitchens, Kitchenettes, or Wet Bars

[Y] [N] When provided as accessory to a sleeping room or suite, are kitchens, kitchenettes, wet bars, or similar amenities accessible?

[Y] [N] Is clear floor space for a front or parallel approach to cabinets, counters, sinks, and appliances provided in compliance with accessibility guidelines?

[Y] [N] Are countertops and sinks mounted at a maximum height of 34 inches above the floor?

[Y] [N] Is at least 50 percent of shelf space in cabinets or refrigerator/freezers within accessible reach ranges?

[Y] [N] Are all controls and operating mechanisms accessible?

Visual Alarms, Notification Devices, and Telephones

[Y] [N] Are visual notification devices provided in units, sleeping rooms, and suites to alert room occupants of incoming telephone calls and a door knock or bell? (Notification devices shall not be connected to auxiliary visual alarm signal appliances.)

[Y] [N] Are permanently installed telephones provided with volume controls?

[Y] [N] Is an accessible electrical outlet within 48 inches of a telephone connection to facilitate the use of a text telephone?

[Y] [N] If the above is not provided, has equivalent facilitation been provided?

Chapter 9

Achieving Accessibility

While campuses may want to work toward total accessibility over the long term, at the outset it will be essential that money be spent where it will be most effective. Just as there is concern about where the money will come from, there should also be concern that available funds be well spent. The following paragraph conveys one of the most important points concerning accessibility compliance.

If a new building is designed from the start with accessibility in mind, the additional costs are statistically insignificant. In most cases, more money is spent in building material waste than is spent on making it accessible. For example, if a building is to be located in a city environment where the building is set back at the sidewalk line and there are grade problems, special lift equipment may be required to access the building. Or, if a building that would not normally require an elevator has to be made accessible, this too would have a substantial impact. A few more square feet might be required for restrooms, or some special equipment such as grab bars might not normally be provided, but when compared to the overall building costs, the costs for these modifications are insignificant.

The following steps are necessary to achieve accessibility:

1. Define what projects are actually required, based upon a thorough examination of academic programs and services offered; personnel needs and essential facilities; and federal, state, and local regulations.
2. Establish priorities.
3. Set a schedule to meet these priorities.

As mentioned earlier in this book, only after a clear, concise architectural program is established can it be decided which projects can be accomplished using existing campus funding and which will require outside resources.

Providing the Most Access for the Least Money

It is imperative that the costs for high-priority projects be kept as low as possible while creating design solutions that ensure safe and aesthetically pleasing facilities.

If any facilities are currently under construction or renovation, the physical plant department should review the plans and catch any barriers with change orders. It is less expensive to accomplish changes at this stage than after the facility is completed.

Projects still in design should be reviewed thoroughly to determine whether any barriers are being designed in. It is especially important to review both the drawings and the specifications, since much of the communication between the architect and the contractor concerning accessories and equipment for people with disabilities is included in the specifications. Barriers can be detected and changed rather easily in the early design phases, and at less expense than later on. Outside and campus groups can be helpful in this area, especially the campus disability support services office.

Existing operations and maintenance funds can be used to provide money to pay for modifications to existing facilities. For example, if a sidewalk leading to a street needs to be repaired, a curb cut can be included in the project. Piggybacking projects in this manner is one way to lessen the financial burden of compliance.

Piggybacking can also occur during the rehabilitation of an existing facility. ADAAG requires that major alterations conform to accessibility criteria. Again, when these criteria are included in the early design stages, the additional cost for accessibility may not be a significant part of the total expenditure.

When a piece of equipment is scheduled for extensive repairs, some extra investigation might reveal an opportunity to achieve campus accessibility. For example, if a water fountain needs repair, the institution could apply funds that would have been spent on the repair toward the purchase of a new, accessible fountain. In this particular case, the change may decrease the life cycle costs related to the fountain.

In selecting facilities to be modified, look for those areas that most closely match the required criteria. For example, where there are several toilet rooms, the one requiring the least amount of work should be selected for modifications. A toilet room with an entrance door having an accessible 32-inch clear opening might need less total work than one with a 26-inch clear opening.

Communication

During any project, from the time the designer puts a pencil to paper until the last of the construction is complete, it is imperative that the communication chain not be broken. One broken link can destroy the effectiveness of a project and waste an untold amount of capital.

To illustrate this concept, take the actual case of a toilet room that was to be made accessible. On the plans, a wider stall was carefully drawn showing grab bars in appropriate places. The specifications indicated the toilet fixture as well as the reinforced partitions to accept the grab bars. When the shop drawings were reviewed they, too, appeared to be in compliance. It was not until the facility was complete and occupied that the faulty link appeared. The designer knew that the door had to have a certain clearance, but neglected to communicate this to the contractor, who in turn put a standard 24-inch door on the stall and rendered the entire project inaccessible.

This type of oversight frequently results from lack of experience with accessibility criteria. Unless the campus administrator becomes thoroughly familiar with the requirements and has developed checklists and procedures based on experience, he or she may overlook critical details in communicating with others involved in the project.

Using the checklist provided in Chapter 8 while reviewing drawings and specifications will quickly reveal any missing links in the chain.

Construction Supervision

Supervision and inspection of construction are other activities of key importance. An example from actual experience is a major site project in which more than 50 curb ramps were installed. All used the same drawings and specifications, but all wound up being constructed differently. Some had 1/2-inch lips at street level, while others had lips anywhere from 2 to 3 inches. The communication from the architect to the contractor was there, but supervision of the actual project was lacking. Ultimately, the final product will have to be changed, but the irritation and time spent to have it redone correctly could have been avoided. Such problems can be avoided if at least one person on the physical plant staff becomes knowledgeable about standards for accessible design.

Program Implementation

After a program and time schedule have been established, the next phase is implementation. Projects will probably fall into two categories: those that can be accomplished by campus staff and those that will require outside consultants and contractors.

The small projects that may be undertaken by campus staff are just as important as the larger, more expensive programs. It is imperative that even the simplest in-house projects meet both accessibility and aesthetic standards.

Construction of modifications should use the same design vocabulary and materials as the building or facility itself. For example, a brick and concrete building, contemporary in style, that needs an entrance ramp to make it accessible, should not have a ramp constructed out of wood and painted green. This would only suffice for a temporary solution until a permanent ramp could be built.

On larger projects the aesthetic value is also important. Architectural access is a crucial element in the effort to include people with disabilities in the mainstream. The more everyone accepts accessibility features for common use rather than perceiving them as special accommodations, the less out of place people with disabilities will feel.

Chapter 10

Additional Resources

Most of the entries below were gathered from information provided by the HEATH Resource Center. HEATH is a clearinghouse funded by the U.S. Department of Education that operates under a congressional mandate to collect and disseminate information about disability issues in postsecondary education. The center has an extensive publications program, a toll-free telephone service, and a professional staff that participates in a network of colleagues throughout the United States.

The list of organizations and publications presented here is by no means exhaustive, but represents important resources to help you learn more about accessibility issues. As mentioned elsewhere in this book, your campus disability support services office is also an invaluable source of information.

National Organizations and Resource Centers

Alexander Graham Bell Association for the Deaf
3417 Volta Place, N.W.
Washington, DC 20007
202/337-5220 (Voice/TDD)

American Amputee Foundation
P.O. Box 250218
Little Rock, AR 72225
501/666-2523

American Association for the Advancement of Science
Project on Science, Technology, and Disability
1333 H Street, N.W.
Washington, DC 20005
202/326-6667 (Voice/TDD)

American Association on Mental Retardation
1719 Kalorama Road, N.W.
Washington, DC 20009
202/387-1719
800/424-3688

American Council of the Blind
1155 15th Street, N.W.
Suite 720
Washington, DC 20005
202/467-5081
800/424-8666

American Institute of Architects
c/o Information Center
1735 New York Avenue, N.W.
Washington, DC 20006
202/626-7493

Architectural and Transportation Barriers Compliance Board
1111 18th Street, N.W.
Suite 501
Washington, DC 20036-3894
202/653-7834 (Voice/TDD)
202/872-2253 (Voice/TDD)

Association for Retarded Citizens
500 East Border Street
Third Floor
Arlington, TX 76010
817/640-0204
800/433-5255

Association on Handicapped Student Service Programs in Postsecondary Education
P.O. Box 21192
Columbus, OH 43221-0192
614/488-4972 (Voice/TDD)

Center on Postsecondary Education for Students with Learning Disabilities
University of Connecticut
249 Glenbrook Road, U-64
Storrs, CT 06269-2064
203/486-4036

Clearinghouse on Disability Information
Office of Special Education and Rehabilitative Services
U.S. Department of Education
Room 3132, Switzer Building
Washington, DC 20202-2524
202/732-1241

Council of Citizens with Low Vision International
1400 North Drake Road, #218
Kalamazoo, MI 49007
616/381-9566

Disabled Veterans of America
807 Maine Avenue, S.W.
Washington, DC 20024
202/554-3501

Educational Resources Information Center (ERIC)
George Washington University
One Dupont Circle, Suite 630
Washington, DC 20036
202/296-2597

Foundation for Science and the Handicapped
1141 Iroquois Drive, #114
Naperville, IL 60563

HEATH Resource Center
One Dupont Circle, Suite 800
Washington, DC 20036
202/939-9320 (Voice/TDD)
800/544-3284 (Voice/TDD)

Helen Keller National Center for Deaf-Blind Youths and Adults
111 Middle Neck Road
Sands Point, NY 11050
516/944-8900 (Voice/TDD)

Independent Living Research Utilization Program
2323 South Shepherd, Suite 1000
Houston, TX 77019
713/520-0232 (Voice)
713/520-5136 (TDD)

Job Accommodation Network
West Virginia University
P.O. Box 6123
Morgantown, WV 26506
304/293-7186
800/526-7234

Mainstream, Inc.
1030 15th Street, N.W.
Suite 1010
Washington, DC 20005
202/898-1400 (Voice/TDD)

National AIDS Information Clearinghouse
P.O. Box 6003
Rockville, MD 20850
301/762-5111
800/342-2437
800/243-7889 (TDD)

National Alliance of Blind Students
1155 15th Street, N.W.
Suite 720
Washington, DC 20005
202/467-5081
800/424-8666

National Association of the Deaf
814 Thayer Avenue
Silver Spring, MD 20910
301/587-1788
301/587-1789 (TDD)

National Center for Youth with Disabilities
Adolescent Health Program
University of Minnesota
Box 721-UMHC
Harvard Street at East River Road
Minneapolis, MN 55455
612/626-2825
612/624-3939 (TDD)
800/333-6293

National Center on Disability Services
201 I.U. Willets Road
Albertson, NY 11507
516/747-5400
516/747-5355 (TDD)

National Center on Employment of the Deaf
National Technical Institute for the Deaf
Rochester Institute of Technology
One Lomb Memorial Drive
Rochester, NY 14623
716/475-6834
716/475-6205 (TDD)

National Council on Disability
800 Independence Avenue, S.W.
Suite 814
Washington, DC 20591
202/267-3846
202/267-3232 (TDD)

National Easter Seal Society
70 East Lake Street
Chicago, IL 60601
312/726-6200
312/726-4258 (TDD)
1350 New York Avenue, N.W.
Washington, DC 20005
202/347-3066

National Federation of the Blind
1800 Johnson Street
Baltimore, MD 21230
301/659-9314

National Head Injury Foundation
1140 Connecticut Avenue, N.W.
Suite 812
Washington, DC 20036
202/296-6443
800/444-6443

National Health Information Center
U.S. Department of Health and Human Services
Office of Disease Prevention and Health Promotion
P.O. Box 1133
Washington, DC 20013-1133
800/336-4797

National Information Center for Children and Youth with Disabilities
P.O. Box 1492
Washington, DC 20013
703/893-6061 (Voice)
703/893-8614 (TDD)
800/999-5599

National Institute of Building Sciences
1201 L Street, N.W.
Suite 400
Washington, DC 20005
202/289-7800

National Organization for Rare Disorders, Inc.
P.O. Box 8923
New Fairfield, CT 06812-1783
203/746-6518
800/999-6673

National Organization on Disability
910 16th Street, N.W.
Suite 600
Washington, DC 20006
202/293-5960
202/293-5968 (TDD)

National Parent Network on Disabilities
1600 Prince Street
Suite 115
Alexandria, VA 22314-2836
703/684-6763 (Voice/TDD)

National Rehabilitation Association
633 South Washington Street
Alexandria, VA 22314
703/715-9090
703/836-0852 (TDD)

National Spinal Cord Injury Association
600 West Cummings Park, Suite 2000
Woburn, MA 01801
617/935-2722
800/962-9629

Paralyzed Veterans of America
801 18th Street, N.W.
Washington, DC 20006
202/872-1300

President's Committee on Employment of People with Disabilities
1111 20th Street, N.W.
Suite 636
Washington, DC 20036
202/376-6200
202/653-5050 (TDD)

Research and Training Center on Independent Living
University of Kansas
4089 Dole Hall
Lawrence, KS 66045
913/864-4095 (Voice/TDD)

Resources for Rehabilitation
33 Bedford Street, Suite 19A
Lexington, MA 02173
617/862-6455

Spina Bifida Association of America
1700 Rockville Pike, Suite 540
Rockville, MD 20852
301/770-7222
800/621-3141

TASH: The Association for Persons with Severe Handicaps
7010 Roosevelt Way, N.E.
Seattle, WA 98115
206/523-8446

United Cerebral Palsy Associations
Seven Penn Plaza, Suite 804
New York, NY 10001
212/481-6300
800/872-1827

World Institute on Disability
510 16th Street
Oakland, CA 94612
415/763-4100 (Voice/TDD)

Young Adult Institute
460 West 34th Street
New York, NY 10001
212/563-7474

In addition to these organizations, the Office for Civil Rights, U.S. Department of Education, maintains ten regional offices that can answer questions on matters related to ADA. The regions and their telephone numbers are listed below.

Region I
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
617/223-9662
617/223-9695 (TDD)

Region II
New Jersey, New York, Puerto Rico, Virgin Islands
212/264-4633
212/264-9464 (TDD)

Region III
Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia
215/596-6772
215/596-6794 (TDD)

Region IV
Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee
404/331-2954
404/331-7816 (TDD)

Region V
Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin
312/886-3456
312/353-2541 (TDD)

Region VI
Arkansas, Louisiana, New Mexico, Oklahoma, Texas
214/767-3959
214/767-3639 (TDD)

Region VII
Iowa, Kansas, Missouri, Nebraska
816/374-6461 (Voice/TDD)

Region VIII
Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming
303/844-5695
303/844-3417 (TDD)

Region IX
Arizona, California, Hawaii, Nevada, Guam, Trust Territory of Pacific Islands, American Samoa)
415/556-7000
415/556-6770 (TDD)

Region X
Alaska, Idaho, Oregon, Washington
206/442-6811
206/442-4542 (TDD)

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Glossary

Most of the following definitions were taken directly from the Americans with Disabilities Act Accessibility Guidelines.

Access aisle An accessible pedestrian space between elements—such as parking spaces, seating, and desks—that provides clearances appropriate for use of the elements.

Accessible Describes a site, building, facility, or portion thereof that complies with ADAAG and that can be approached, entered, and used by physically disabled people.

Accessible element An element specified by ADAAG (for example, telephone, controls).

Accessible route A continuous unobstructed path connecting all accessible elements and spaces in a building or facility. Interior accessible routes may include corridors, floors, ramps, elevators, lifts, and clear floor space at fixtures. Exterior accessible routes may include parking access aisles, curb ramps, walks, ramps, and lifts.

ADA Americans with Disabilities Act. A far-reaching civil rights statute, signed into law in 1990, that prohibits discrimination against people with disabilities.

ADAAG Americans with Disabilities Act Accessibility Guidelines. Federal accessibility guidelines issued in July 1991 to facilitate compliance with ADA Title III, Public Accommodations. These guidelines also may be used for Title II, Local Government, until new guidelines are issued.

Adaptability The ability of certain building spaces and elements, such as kitchen counters, sinks, and grab bars, to be added or altered so as to accommodate the needs of either disabled or nondisabled persons, or to accommodate the needs of persons with different types or degrees of disability.

Addition An expansion, extension, or increase in the floor area of a building or facility.

Administrative authority A governmental agency that adopts or enforces regulations and standards for the design, construction, or alteration of buildings and facilities.

AFF Above finished floor.

Alteration As applied to a building or structure, a change or rearrangement in the structural parts or elements, or in the means of egress or in moving from one location or position to another. It does not include normal maintenance, repair, reroofing, interior decoration, or changes to mechanical and electrical systems.

ANSI American National Standards Institute. A nongovernmental national organization that publishes a wide variety of recommended standards.

Area of rescue assistance An area that has direct access to an exit, where people who are unable to use stairs may remain temporarily in safety to await further instructions or assistance during emergency evacuation.

ASME American Society of Mechanical Engineers.

Assembly area A room or space accommodating fifty or more individuals for religious, recreational, educational, political, social, or amusement purposes, or for the consumption of food and drink, including all connected rooms or spaces with a common means of egress and ingress. Areas such as conference rooms would have to be accessible in accordance with other parts of ADAAG, but would not have to meet all of the criteria associated with assembly areas.

ATBCB Architectural and Transportation Barriers Compliance Board. Federal agency established to ensure compliance with accessibility standards and to issue minimum guidelines and requirements.

Automatic door A door equipped with a power-operated mechanism and controls that open and close the door automatically upon receipt of a momentary actuating signal. The switch that begins the automatic cycle may be a photoelectric device, floor mat, or manual switch mounted on or near the door itself. (See Power-assisted door.)

Barrier An impediment to the independent and safe use of a facility or piece of equipment by a person with a disability.

Circulation path An exterior or interior way of passage from one place to another for pedestrians, including, but not limited to, walks, hallways, courtyards, stairways, and stair landings.

Clear Unobstructed.

Common use Refers to those interior and exterior rooms, spaces, or elements that are made available for the use of a restricted group of people (for example, residents of a dormitory, occupants of a campus building, or the guests of such residents or occupants).

Cross slope The slope that is perpendicular to the direction of travel (also called running slope).

Curb ramp A short ramp cutting through a curb or built up to it.

Detectable Perceptible by one or more of the senses.

Detectable warning A standardized surface texture applied to or built into walking surfaces or other elements to warn visually impaired people of hazards in the path of travel.

Disability A limitation or loss of use of a physical, mental, or sensory body part or function.

Dwelling unit A single unit of residence that provides a kitchen or food preparation area in addition to rooms and spaces for living, bathing, sleeping, and the like.

Egress, means of A path of exit that meets all applicable code specifications of the regulatory building agency having jurisdiction over the building or facility.

Element An architectural or mechanical component of a facility, space, or site (e.g., telephones, curb ramps, doors, drinking fountains, seating, water closets).

Entrance Any access point to a building or portion of a building or facility used for the purpose of entering. An entrance includes the approach walk, the vertical access leading to the entrance platform, the entrance platform itself, vestibules if provided, entry door(s) or gate(s), and the hardware of the entry door(s) or gate(s). The principal entrance of a building or facility is the main door through which most people enter.

Essential features Those elements and spaces that make a building or facility usable by, or serve the needs of, its occupants or users. Essential features include but are not limited to entrances, toilet rooms, and accessible routes. Essential features do not include those spaces that house the major activities for which the building or facility is intended, such as classrooms and offices (see Functional spaces).

Facility All or any portion of a building, structure, or area, including the site on which the building, structure, or area is located, wherein specific services are provided or activities performed.

Functional spaces The rooms and spaces in a building or facility that house the major activities for which the building or facility is intended.

Housing A building, facility, or portion thereof, excluding inpatient health care facilities, that contains one or more dwelling units or sleeping accommodations. Housing may include, but is not limited to, one- and two-family dwellings, apartments, group homes, hotels, motels, dormitories, and mobile homes.

Marked crossing A crosswalk or other identified path intended for pedestrian use in crossing a vehicular way.

MGRAD Minimum Guidelines and Requirements for Accessible Design. Federal accessibility guidelines in use prior to passage of the Americans with Disabilities Act. These guidelines have been revised and incorporated into ADAAG.

Multifamily dwelling Any building containing more than two dwelling units.

Operable part A part of a piece of equipment or appliance used to insert or withdraw objects, or to activate, deactivate, or adjust the equipment or appliance (for example, coin slot, pushbutton, handle).

Physically disabled An individual who has a physical impairment including impaired sensory, manual, or speaking abilities, which results in a functional limitation in access to and use of a building or facility.

Principal entrance An entrance intended to be used by the residents or users to enter or leave a building or facility. This may include, but is not limited to, the main entrance.

Power-assisted door A door used for human passage with a mechanism that helps to open the door, or relieve the opening resistance of a door, upon the activation of a switch or a continued force applied to the door itself. If the switch or door is released, such doors immediately begin to close or close completely within 3 to 30 seconds (see automatic door).

Public use Describes interior or exterior rooms or spaces that are made available to the general public. Public use may be provided at a building or facility that is privately or publicly owned.

Ramp A walking surface in an accessible path that has a running slope greater than 1:20.

Readily achievable Easily accomplished and able to be carried out without much difficulty or expense.

Running slope See Cross slope.

Section 504 Refers to program accessibility requirements under the Rehabilitation Act of 1973.

Service entrance An entrance intended primarily for delivery of services.

Signage Verbal, symbolic, tactile, and pictorial information.

Site A parcel of land bounded by a property line or a designated portion of a public right-of-way.

Site improvement Landscaping, paving for pedestrian and vehicular ways, outdoor lighting, recreational facilities, and the like, added to a site.

Space A definable area, e.g., toilet room, hall, assembly area, entrance, storage room, alcove, courtyard, or lobby.

Structural impracticability Changes having little likelihood of being accomplished without removing or altering a load-bearing structural member and/or incurring a cost exceeding 50 percent or more of the value of the element of the building or facility involved.

Tactile Describes an object that can be perceived using the sense of touch.

Tactile warning A standardized surface texture applied to or built into walking surfaces or other elements to warn visually impaired people of hazards in the path of travel.

TDD Telecommunications device for the deaf, or text telephone. Allows nonvoice communication over standard telephone lines.

Temporary Applies to facilities that are not of permanent construction but are extensively used or essential for public use for a given (short) period of time, for example, temporary classrooms or classroom buildings at schools and colleges, or facilities around a major construction site to make passage accessible, usable, and safe for everybody. Structures directly associated with the actual processes of major construction (such as portable toilets, scaffolding, bridging, and trailers) are not included. Temporary as applied to elements means installed for less than six months and not required for safety reasons.

UFAS Uniform Federal Accessibility Standards. Originally issued in 1984 to reduce differences in the standards used by the four standard-setting federal agencies.

Undue hardship Significant difficulty or expense.

Vehicular way A route intended for vehicular traffic, such as a street, driveway, or parking lot.

Walk An exterior pathway with a prepared surface intended for pedestrian use, including general pedestrian areas such as plazas and courts.

Walking aid A device used by a person who has difficulty walking (for example, a cane, crutch, walker, or brace).

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About the Author

Stephen Cotler was born in New York City and currently resides with his wife and youngest daughter in Newtonville, New York. After graduating from Rensselaer Polytechnic Institute, where he received a bachelor of architecture degree in 1964, he spent twenty years with the New York State University Construction Fund, a public benefit corporation set up to handle the expansion of the thirty-two SUNY campuses. At the Fund, he served as a research project coordinator and then as a project coordinator for the architectural and engineering services division. While in the former position, Mr. Cotler became internationally known for his research in making buildings accessible to people with physical disabilities. He wrote several books on the subject and spoke at numerous seminars throughout the United States.

In 1985, Mr. Cotler left the Construction Fund to set up his own architectural firm and a software company specializing in electronic versions of building codes. He has continued to be active in the field of architectural accessibility, undertaking numerous renovation projects for this purpose.